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The Commonwealth of Massachusetts

ANNUAL REPORT

OF THE

DEPARTMENT OF LABOR AND INDUSTRIES

FOR THE

Year Ending November 30, 1938

Publication of this Document Approved by the Commission on Administration and Finance

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The Commonwealth of Massachusetts

DEPARTMENT OF LABOR AND INDUSTRIES

OFFICIALS

James T. Moriarty, Boston, *Commissioner.*
Mary E. Meehan, Boston, *Assistant Commissioner.*
John L. Campos, Fall River, *Associate Commissioner.*
Thomas F. Curley, Boston, *Associate Commissioner.*
Raymond V. McNamara, Haverhill, *Associate Commissioner.*

HEADS OF DIVISIONS AND BRANCHES

Board of Conciliation and Arbitration:
Thomas F. Curley, *Chairman.* John L. Campos. Raymond V. McNamara.

Division of Industrial Safety: John P. Meade, *Director.*
Raymond F. O'Connell, *Counsel.*

Minimum Wage Commission: Mary E. Meehan, *Executive Secretary.*

Thomas F. Curley, *Chairman.* John L. Campos. Raymond V. McNamara.

Division on the Necessaries of Life: Richard Olney, *Director.*

Division of Occupational Hygiene: Manfred Bowditch, *Director.*

Division of Standards: John P. McBride, *Director.*

Division of Statistics: Roswell F. Phelps, *Director*
Joseph King, *Statistician for Manufactures.*
Lester E. Archibald, *Statistician for Labor.*

Massachusetts Development and Industrial Commission:
Bernard J. Doherty, *Secretary.*

Unemployment Compensation Commission:
Laurence P. Harrington, *Executive Secretary.*
Emil E. Fuchs, *Chairman.* James P. Meehan. Frank G. Allen.

Division of Public Employment Offices: Fred J. Graham, *Director.*

Massachusetts Labor Relations Commission:
Harold L. Burke, *Executive Secretary.*
Michael F. Phelan, *Chairman.* Patrick J. Sullivan. Francis M. Curran.

REPORT OF THE COMMISSIONER OF LABOR AND INDUSTRIES

To the General Court:

The annual report of the Commissioner of Labor and Industries for the year ending November 30, 1938, is herewith submitted. It is the department's nineteenth report and includes reports of the heads of the various divisions and a statement of the appropriations and expenditures for this period.

State Printing.—Through the enactment of new legislation this year the Commissioner was given the power to determine the prevailing rate of wages and working hours of employees in the printing and binding trades and to prepare and furnish this information for the use of the Commission on Administration and Finance together with a list of the several classifications.

Minimum Wage.—During the year 161 complaints were filed with this division by employees who were receiving less than the minimum rate to which they were entitled under the requirements of the minimum wage law. Some form of adjustment was secured in all these cases.

Weekly Payment of Wages.—During the year, 2,679 complaints were received for non-payment of wages. Through the efforts of the department the sum of $54,587.16 was paid in wages to the workers. The adjustment of these complaints is one of the most important duties the department has to perform.

Hurricane Service.—I am very proud of the work done by the employees of this department during the month of September when the state was visited by severe hurricane and flood. The Governor, anticipating serious consequences, declared a state of emergency and designated the Director of the Division on the Necessaries of Life to act as Emergency Food and Fuel Administrator and our inspectors were appointed deputy administrators with power to seize food, fuel and clothing where necessary. Our inspectors, both industrial and building, were of inestimable value to the communities they visited. In one community, with the assistance of men from the Department of Public Works and WPA workers a pontoon bridge was erected in a very short space of time saving the people in this area miles of travel for food supplies.

The department's test truck, used by the Division of Standards in testing large capacity scales, was used during the hurricane crisis for transporting vaccine and serum and also carried kerosene for lighting purposes into the town of Ware which was severely hit by the storm. It was one of the first pieces of motor equipment to enter this badly stricken area.

A more detailed account of the assistance rendered by the employees of this department during this troubled time may be found elsewhere in this report.

Appropriations.—The total amount of the several appropriations for the use of the department excluding the Unemployment Compensation Commission and Labor Relations Commission, was $530,966.19; the expenditures amounted to $515,631.57, leaving an unexpended balance of $15,334.62.

The appropriation for the Massachusetts Unemployment Compensation Commission amounted to $4,424,162.07; the expenditures amounted to $3,874,456.58, leaving an unexpended balance of $549,705.49.

The appropriation for the Massachusetts Labor Relations Commission amounted to $64,827.25; the expenditures amounted to $62,394.21, leaving an unexpended balance of $2,433.04. The sum of $467.59 was collected from the sale of stenographic records, and this amount was paid into the treasury of the commonwealth.

The appropriations of the Unemployment Compensation Commission and the Massachusetts Labor Relations Commission do not come within the jurisdiction of the commissioner of labor and industries.

JAMES T. MORIARTY,
Commissioner of Labor and Industries.

FINANCIAL STATEMENT FOR 1938.

INCOME

Division of Industrial Safety		
Fees for issuance of employers' permits to distribute industrial home work certificates	$2,650.00	
Fees for registration of painters' rigging and for examination for certification as painters' rigger	20,806.00	
Total receipts of the division of industrial safety		$23,456.00
Division of Standards		
Collected in fees and paid into the treasury of the commonwealth	$73,693.12	
Collected in fees and paid into the treasuries of cities, towns and counties of the commonwealth	41,620.00	
Penalties for violations of hawkers and pedlars laws	533.75	
Paid directly to State Treasurer for witness fees	2.00	
Total receipts of the division of standards		115,848.87
Total receipts of the department of labor and industries		$139,304.87

EXPENDITURES

Account	Appropriations and balances forwarded from 1937	Expenditures	Unexpended Balance
Administration			
Commissioner, assistant and associate commissioners, personal services	$23,500.00	$23,500.00	–
Clerical and other assistance, personal services	7,700.00	7,700.00	–
Division of Industrial Safety			
Inspectional service, personal services and expenses	170,814.75	170,014.23	800.52
Division of Statistics			
Statistical service, personal services and expenses	72,500.00	72,400.03	99.97
Board of Conciliation and Arbitration			
Personal services	20,300.00	18,980.98	1,319.02
Other expenses	12,359.25	11,457.23	902.02
Minimum Wage Commission			
Personal services	18,800.00	15,959.32	2,840.68
Other expenses	4,111.83	3,215.69	896.14
Wage boards	3,500.00	2,560.63	939.37
Division of Standards			
Personal services	32,800.00	32,797.00	3.00
Other expenses	13,173.96	12,745.56	428.40
Division on the Necessaries of Life			
Personal services	13,100.00	12,886.99	213.01
Other expenses	1,907.20	1,381.79	525.41
Division of Occupational Hygiene			
Personal services	11,760.00	11,740.00	20.00
Other expenses	6,107.47	5,556.60	550.87
Massachusetts Development and Industrial Commission			
Personal services	8,900.00	8,443.09	456.91
Expenses	108,631.73	104,292.43	4,339.30
Special Commission on Apprentice Training.			
Personal services and expenses	1,000.00	–	1,000.00
Total	$530,966.19	$315,631.57	$15,334.62
Labor Relations Commission			
Personal services and expenses	$64,827.25	$62,394.21	$2,433.04
Total	$64,827.25	$62,394.21	$2,433.04
Massachusetts Unemployment Compensation Commission			
State appropriation			
Division of Public Employment Offices			
Personal services	$84,158.00	$84,158.00	–
Expenses	18,780.00	18,780.00	–
Total	$102,938.00	$102,938.00	–
Federal Grants			
Administration	$2,967,434.15	$2,591,383.77	$376,050.38
Public Employment Offices	1,353,789.92	1,180,134.81	173,655.11
Total	$4,321,224.07	$3,771,518.58	$549,705.49
Total, State and Federal Grants	$4,424,162.07	$3,874,456.58	$549,705.49
Recapitulation			
Officials	$23,500.00	$23,500.00	–
Personal services and expenses	506,466.19	492,131.57	$14,334.62
Spec. Com. on Apprentice Training	1,000.00	–	1,000.00
Labor Relations Commission	64,827.25	62,394.21	2,433.04
Massachusetts Unemployment Compensation Commission	4,424,162.07	3,874,456.58	549,705.49
GRAND TOTAL	$5,019,955.51	$4,452,482.36	$567,473.15

Financial statement verified.
Approved.
GEO. E. MURPHY, *Comptroller.*

REPORT OF THE DIVISION OF INDUSTRIAL SAFETY

JOHN P. MEADE, *Director*

ADMINISTRATION

I am submitting herewith the annual report of the division for the year ending November 30, 1938. The laws relating specifically to the work of the division are contained in chapter 149 of the General Laws (Ter. Ed.), and certain provisions concerning our organization are in chapter 23 of the General Laws, (Ter. Ed.).

The present organization of the division consists of a director, counsel, 42 inspectors (including 31 industrial, 8 building, two supervising inspectors, and one chief inspector) and an office staff of 20 persons.

The division maintains five branch offices located in the cities of Worcester, Springfield, Fall River, Lawrence, and Pittsfield. Each of these offices employs a full-time stenographer and the number of inspectors assigned to each office varies with the location and business needs of the territory.

The division collects fees from two different sources of its work: First, from the painting rules and regulations, and, secondly, from the issuance of industrial home work permits.

The fees received from painters amounted to $20,814, and fees on home work $2,650.

The appropriation for the work of the division was $169,000.

SUMMARY OF ACTIVITIES

A total of 54,601 establishments were inspected during the past year. In addition there were 10,500 visits made by the staff and 10,355 reinspections, making a total for the year of inspections and visits of 75,456. The following table shows these inspections and visits in detail:

Inspections:	
Mercantile	29,571
Mechanical	8,345
Manufacturing	5,034
Building operations	4,440
Painting operations	4,682
Public works	2,529
	54,601
Reinspections	10,355
Visits:	
Complaints	4,439
Accidents	1,271
Diseases	330
Homework	1,761
WPA projects	679
All other	2,020
	10,500

Employees in Industrial Establishments

In the 42,950 establishments inspected there was a total of 738,003 employees; in the 29,571 mercantile establishments there were 192,627 employees; in the

8,345 mechanical establishments there were 156,832 employees and in the 5,034 manufacturing establishments there were 388,544 employees. We have made an analysis of these employees by age groups as shown by the following table:

	All establishments	Mercantile	Mechanical	Manufacturing
Males				
14 to 16 years	340	290	27	23
16 to 21 years	28,863	8,078	6,038	14,747
Over 21 years	443,316	105,357	107,450	230,509
	472,519	113,725	113,515	245,279
Females				
14 to 16 years	166	121	8	37
16 to 21 years	35,699	8,844	5,152	21,703
Over 21 years	229,619	69,937	38,157	121,525
	265,484	78,902	43,317	143,265

Orders

Inspectional work constitutes the major part of the work of the division, together with the follow-up of orders issued. There were 19,037 orders issued by the department this year, including 8,785 verbal orders which were complied with at the time of issuance, making a total of 18,835 orders complied with this year. There were 9,482 orders relating to labor; 5,075 to health and sanitation; 2,147 to safety; 788 to building operations; 1,216 to painting operations; 226 to public works and 103 were miscellaneous.

The number of issued orders outstanding at the close of the year was 1,080

One can draw a most accurate picture of our work by noting the number and type of orders issued by our staff. We classify them under labor, health, safety, building, painting and public works.

It will be noted in the group designated as "labor" orders that more than two-thirds of them related to the posting of time notices. In the "health" and "sanitation" group orders, more than 80% of these were issued on matters regulated by three orders, viz: Sunday work, medical chest and rest rooms, and toilet and washing facilities. Of the 2,147 "safety" orders, 1,975 were issued on unsafe machinery. Of the 2,000 orders issued relating to painting and building operations, 60% related to painting operations and approximately 40% concerned building operations. There were only 226 orders issued this year relating to public works, but the amount of field and follow-up work involved a great expenditure of time.

The orders relating to posting rates and wage classifications, 112 in all, show that inspectors visiting the job had to confirm rates paid with rates established by the department and in many cases had to examine payrolls and when necessary compel contractors to make up differences.

In certain cases hearings had to be held at the office with all parties in attendance before the matter was finally adjusted.

The matter of citizens' preference, on which 60 orders were issued, also required infinite patience and follow-up work.

Breaking down these groups further, the orders issued under our various classifications were as follows:

Orders Issued

Labor: Employment of minors, 92; time notices, 6,284; minors employed in prohibited trades and occupations and on dangerous machinery, 16; public exhibition of children, 4; procuring from and returning to school departments the certificates issued by them, 3,086. Total, 9,482.

Health and Sanitation: Sunday work and one day's rest in seven, 1,811; toilet and washing facilities, 1,755; medical chests and rest rooms, 804; ventilation, gas, fumes and dust removal, 263; lighting and injury to eyes, 289; common drinking cup and common towel, 66; pure drinking water, 25; seats

for women and minors, 27; meal hours for women and minors, 23; lockers, 8; thermometers, wet and dry bulb readings, 4. Total, 5,075.

Safety: Guarding dangerous machinery, 1,975; free egress from building, 103; unguarded openings, 50; communication with engine room, 19. Total, 2,147.

Building Operations: Painting operations, 1,216; building operations, 788. Total, 2,004.

Public Works: Posting rates, wage classifications, 112; citizens' preference, 60; submitting payrolls, 47; 48-hour week, 7. Total, 226.

Miscellaneous: Homework licenses, 43; pay weekly, 29; textile specifications, 20; storing explosives, 6; weavers' specifications, 3; tips, 1; employed without monetary compensation, 1. Total, 103.

Complaints

There was a total of 4,403 complaints filed with the department this year including 2,679 concerning wages. These wage complaints will be treated at greater length later in this report. Of the remaining 1,724 complaints, 1,688 were filed by the public and 36 by co-operative agencies. Of these 1,724 complaints we found 728 to be justified and 996 not justified. It will be noted that the non-justified complaints comprised 60% of the total number received.

We accept a great number of anonymous complaints. These are found to be in large measure justified. Our non-justified complaints are sent in many instances through ignorance of the law. Many are submitted during so-called rush seasons where the employees were working on shifts, and the fact that the business was open longer than 9 hours a day caused the department to be notified; others with reference to boys have shown the boys to be over 18 years of age and not included in our minor law. It has been our experience recently that overtime has been called to our attention by persons who have confused our 48-hour law with the federal wage and hour law of 44 hours a week.

We refer all federal wage and hour complaints to the local federal office.

Of the other complaints investigated, 713 related to overtime employment of women and minors, 82 to minors, exclusively; 57 concerned time notices; 2, illegal advertising and 4 were in regard to machinery. There were 299 general labor complaints, including the one day's rest in seven law, weekly payment of wages, holiday employment and homework. There were 128 complaints concerning health and sanitation, including 62 concerning toilet and washing facilities, and 37 in relation to ventilation. In connection with our rules relating to painting and building operations we received 432 complaints of which 426 related exclusively to the painting rules and regulations. There were seven complaints received relating to public works, such as citizens' and veterans' preference.

Accident Investigations

The division examines all reports of industrial accidents filed with the Industrial Accident Board. We study in particular all fatal accidents, all injuries to minors under 18 years of age, amputations, serious machinery accidents, serious eye injuries, building accidents and occupational diseases. After this study we assign those accidents which we feel should be investigated further to the inspector in whose district these accidents occurred.

During the year there was a total of 945 accidents investigated by us and in the following table we classify these by industries and age groups.

INDUSTRIAL ACCIDENTS INVESTIGATED DURING YEAR ENDING NOV. 30, 1938.

	Totals		14–17		18–20		21–60		60 and Over		Fatal	
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
Textile	104	16	10	1	11	2	77	12	6	1	17	–
Metal	82	15	2	3	10	2	68	10	2	–	2	–
Foundry	76	1	4	–	10	–	59	1	3	–	10	–
Woodworking	52	2	5	–	8	–	32	1	7	–	1	–
Shoe manufacturing	36	19	8	6	9	6	17	6	2	1	5	1
Paper	46	5	4	1	11	1	28	3	3	–	3	–
Food products	37	8	5	3	4	3	27	2	1	–	6	–
Leather	27	1	2	1	–	–	20	–	5	–	6	–
Rubber	26	1	1	–	3	–	22	1	–	–	1	–
Clothing manufacturing	10	15	2	6	2	4	4	5	2	–	–	–
Electric equipment	17	4	–	–	1	–	14	4	2	–	1	–
Transportation	20	–	1	–	2	–	17	–	–	–	8	–
Light and fuel	18	–	–	–	–	–	16	–	2	–	6	–
Mercantile	15	3	4	–	1	–	8	3	2	–	6	1
Chemical manufacturing	14	2	1	–	5	1	7	1	1	–	2	–
Printing	12	1	2	–	2	–	8	1	–	–	2	–
Laundries	6	6	–	1	–	2	5	2	1	1	1	–
Real estate	11	–	–	–	–	–	8	–	3	–	9	–
Pyroxylin products	7	4	–	3	1	–	6	1	–	–	–	–
Toys and games	9	1	–	–	–	1	9	–	–	–	1	–
Glass, clay and stone	8	1	–	–	1	1	5	–	2	–	2	–
Brewing	9	–	–	–	1	–	6	–	2	–	3	–
Fireworks	3	–	–	–	–	–	3	–	–	–	1	–
Express	3	–	–	–	–	–	3	–	–	–	1	–
Miscellaneous	26	3	4	1	5	1	11	1	6	–	12	–
Building Trades	163	–	1	–	5	–	139	–	18	–	27	–
Totals	837	108	56	26	92	25	619	54	70	3	133	2

There were 782 accidents to employees in industrial establishments.

Classified by type of injury, these are as follows:

Type of Injury	*Total*	*Non-Fatal*	*Fatal*
Abrasions, bruises and contusions	135	125	10
Amputations	173	169	4
Burns	64	57	7
Concussions	9	7	2
Crushed to death	10	—	10
Cuts, punctures and lacerations	139	133	6
Electric burns	5	—	5
Eye injuries	50	50	0
Fatal falls	11	—	11
Fractures	135	107	28
Infections	16	10	6
Internal injuries	7	3	4
Sprains and strains	28	13	15
Totals	782	674	108

Contact with machinery caused 460 of the accidents investigated. In plants where these accidents occurred, 423 had safeguarded the machinery and 384 of these establishments maintained first aid rooms. Of the 384 having first aid rooms, 63 had full time doctors and nurses; 121 had full time nurses and 147 had first aid attendants. Medical kits were maintained in 227 other establishments.

Of the 108 fatal accidents in industrial establishments, there were but two women killed.

Causes of death were as follows: Falls, 41; strains, 14; hit by object, 13; contact with machinery, 10; infection, 10; crushed to death, 9; burns, 6; and contact with electricity, 5.

Accidents in the Building Trades

During the year there were 163 accidents in the building trades investigated. Twenty-seven of these were fatal.

Classified by Employment	*Total*	*Non-Fatal*	*Fatal*
Construction	71	67	4
Painting	26	23	3
Alteration and repair	23	18	5
Roofing	21	15	6
Bridge construction	5	4	1
Bricklayers	5	2	3
Road building	5	3	2
Building wrecking	4	2	2
Sand blasting	1	1	—
Dredging	1	—	1
Subway building	1	1	0
Totals	163	136	27

Classified by Nature of Injury:

Nature of Injury	*Total*	*Non-Fatal*	*Fatal*
Fractures	59	50	9
Abrasions, bruises and contusions	28	28	0
Lacerations	21	21	—
Sprains and strains	20	19	1
Fatal falls	14	—	14
Concussion	11	11	—
Internal injuries	4	4	—
Amputation	2	2	—
Crushed to death	2	—	2
Burns	2	1	1
Totals	163	136	27

Occupational Diseases

There were 161 cases of industrial disease investigated during the year. Ten of these were fatal, one being a woman. In each instance the work room was inspected and when necessary suggestions were made and orders issued to prevent a recurrence.

These are tabulated as follows: 116 cases of dermatitis, affecting 86 men and 30 women; 14 cases of lead poisoning, all men; 12 cases of gas and fume poisoning, all men; 7 cases of benzol poisoning, 4 men and 3 women; 5 cases of tuberculosis, all men; 3 cases of anthrax, all men; 4 cases of other dust, all men. Of this group there were 3 boys and 3 girls under 18 years of age and 12 men over 60 were employed.

Lead Poisoning

There were 14 cases of lead poisoning investigated during the year. All were men and none were fatal. They occurred in the following industries: painters, 6; metal trades, 2; battery manufacturing, 2; miscellaneous, 4.

Gas and Fume Poisoning

There were 12 cases of gas and fume poisoning investigated during the year, all were males. Exposure to the fumes from molten iron, xylol, carbon dioxide, chlorine gas, carbon tetrachloride and sulphuric acid caused the illness. Of these there were two fatal cases.

Benzol Poisoning

There were seven cases of benzol poisoning. Five occurred in rubber mills, one of which proved fatal. Another fatal case was caused by mixing benzol compound in a plant where artificial leather is made. A woman employed cementing crepe soles and heels suffered from benzol poisoning.

Tuberculosis

Five employees, all men, suffered from tuberculosis. Four cases were fatal. Two cases were caused by the inhalation of stone dust; in two, colds developed into tuberculosis and the other case was caused by exposure to gas and smoke.

Other Dust Diseases

There were four other cases of dust disease. Two were fatal. One employee was exposed to chemical dust over a long period. As the result of inhalation of foreign matter from wool another employee died from carcinoma of the lungs. Asbestos was the cause of disease in one case and in another asthma developed from the dust from sandpaper wheels.

Anthrax

There were three cases of anthrax. All occurred in tanneries and none were fatal. All these employees handled skins and worked in rooms that were clean and well ventilated.

Weekly Payment of Wages

Again this year our work relating to the enforcement of the weekly payment law constitutes an important part of our accomplishments. We received 2,679 wage complaints. The total amount paid to employees after filing their cases with us amounted to $54,587.16. Of our 863 court complaints, 594 related to wages. The disposition of these court cases reflects the painstaking, earnest work of the employees of the division. Of our 594 court complaints 403 were found guilty, 14 not guilty, 45 were defaulted and 91 were dismissed. In this latter group, dismissal occurred where payment of wages had been made after court proceedings had been instituted.

We assisted 473 complainants in applying for a court hearing where the courts refused to issue a complaint. These persons had previously been granted a hearing at our office and no agreement could be reached between the parties. Under the statute this department has no authority to render a decision so a court hearing is our only recourse. We adjusted 356 other complaints after a hearing at this office. 5,961 persons called at the department's offices during the year, believing they had cause to complain concerning wage matters. The department accepted 2,679 complaints and of this number 1,656 have reported payment in full. 3,282 were not taken by the department for the reasons noted:

1,150	were simply making inquiry on the law, notice and vacations, etc.
341	department had no jurisdiction
415	persons had contracts
356	involved disputes
330	valid set-offs
319	commissions, being contingent upon payments made by customers
231	cases were outlawed for time, or defendants were located outside the state
140	had insufficient data or information on their claims

Homework

We referred at some length in our last report to the new homework law. During the past year 53 firms secured homework permits. These firms were distributed among the following industries: 19 in shoe ornaments and leather novelties; 14 wearing apparels; 8 toys and games; 7 jewelry; 5 miscellaneous.

Again this year we have had to advise employers against sending in the names of persons to whom they wished certificates granted before they had determined if the persons were qualified to perform the work.

Where this had not been done much unnecessary time and expense was incurred in investigating the workers' homes only to learn later that some of these persons were not qualified to perform the work.

At the close of our year we were making an intensive drive against a few firms who were paying less than the minimum wage required under our rules and regulations.

Pre-Determining Wage Rates

During the past year the work of the inspectors of building operations on this type of work was as follows:

	Projects
Classification and wage rates were furnished for	1,453
Additional classifications were furnished for	48
Revised rates were furnished for	24
Various U. S. departments*	60

2,386 inspections were made on these projects.

$2,765.24 was paid to employees after an inspection showed that the proper rates had not been paid.

State Printing

New legislation was enacted this year giving the Commissioner power to determine the prevailing rate of wages and to prepare and furnish for the use of the Commission on Administration and Finance a list of several classifications, together with the prevailing rate of wages and working hours of employees in the printing and binding trades. In this connection the inspectors visited 229 establishments and in checking these the inspectors made 405 visits on the follow-up work. The inspectors also made thorough reinspections of these plants to determine if our rules and regulations were being observed.

Painters

During the year the division collected $20,806 in fees on this work. This was the first year that our revised rules became operative having all certificates expire annually on one date, March 31.

We issued 4,548 rigging certificates, these included 3,164 renewals, 1,384 original certificates. We also renewed 5,491 riggers' certificates. There were 2,796 persons examined this year with 2,313 passing and 483 failing to pass. These examinations were conducted by our three examiners of painters and also by our regular inspectors of building operations. During the height of the season examinations were conducted weekly in Boston, and at various other periods at our branch offices.

Legal Department

For the year ending November 30 the department prosecuted defendants on 863 counts.

There were:

645 Guilty findings
28 Not guilty findings
103 Dismissed
45 Nol prossed (one appealed wage case)
42 Defaults

The 645 guilty cases included:

403 Wage complaints
127 Women and minors violations
101 Painting rule violations
12 Public works violations
2 Toilet rules violations

*These wage rates are used by the federal government in predetermining wage rates and classifications for federal projects.

The 28 not guilty findings included:
- 14 Wage complaints — contracts and disputes
- 8 Women and minors — overtime employment of minor on freight elevator; employment of minor after 6 P. M.
- 4 Painting rules
- 1 Toilet rules
- 1 Failure to label benzol container

The 103 dismissed findings included:
- 91 Wages — wages paid and 1 wrong defendant
- 7 Women and minors violations
- 4 Painting rules violations
- 1 Toilet rules violations

The 43 Straight defaults included:
- 41 Wage complaints
- 1 Painter

During the year, on 473 cases of nonpayment of wages, complaints were refused by the courts for the following reasons:
- 163 Wages were paid
- 41 Disputes
- 5 Better addresses
- 1 Wages attached
- 137 Agreements reached between the parties
- 7 Insufficient evidence
- 2 Defendants outside state
- 1 Defendant insane
- 1 Defendant too ill and aged to appear in court
- 3 Contracts
- 101 Parties did not appear
- 8 No jurisdiction
- 2 Valid setoffs
- 1 Complainant failed to sign complaint

During the year, the following cases appealed from findings and were later disposed of in the Superior Court.

Offence	*Lower Court*	*Superior Court*
6 counts; employment at time other than stated on time notice (women)	Defendant fined $50 on 1 count, others filed.	Defendant manager informed court her employer refused to pay fine and court remitted fine, filed cases.
1 count,—illegal employment of minor; 1 count—employment of minor after 6 p.m.; 1 count—minor where liquor sold.	Defendant—a booker was fined $10 on each count.	Defendant fined $25 on each count.
Same counts against establishment, owners prosecuted in addition to booker.	Defendant fined $10 on each count	Defendant's cases placed on file; penalty being imposed by Superior Court on booker as above.
On 4 counts—home-work violations.	Defendant fined $50 on each count.	Defendant fined $50 on 1 count, all others placed on file.
On 1 count—failure to install exhaust to remove dust hazard.	Defendant fined $25.	Case filed on condition that exhaust be installed before commencing operations.
On 45 counts—non-payment of wages.	Defendants—partners sent 2 weeks each in House of Correction.	Nol prossed as Defendants had paid attorneys who failed to turn money over to employees.
On 2 counts—non-payment of wages.	Defendant—fined $50 on each count.	Sentence to 2 mos. in House of Correction.
On 1 count—non-payment of wages.	Defendant—sent 1 month House of Correction	Sentenced to 1 month, House of Correction.
On 2 counts—non-payment of wages.	Defendant—fined $25 on each count.	Given 2 mos. Susp. for a year.
On 3 counts—non-payment of wages.	Defendant—sent 1 mo. on each count.	Placed on probation.
On 3 counts—non-payment of wages.	Defendant—fined total $125.	Placed on probation.
On 16 counts—non-payment of wages.	Defendant fined $125 and sentenced 13 mos. House of Correction.	Lower Court upheld in penalty.

The division has continued the practice of calling in employers who were found violating the law for the first time. The seriousness of the offence was impressed upon the employers and notice given that any future violations would mean court action on our part. In certain cases where large numbers of employees were involved in the violation (which was generally overtime employment) the employees were given added compensation on an overtime basis of payment.

We have found this procedure a very practical method of teaching proper observance of the law to a certain type of employer.

In August the department revoked the vote of the board passed in 1919 which placed the straw hat industry in the "seasonal" classification. It was learned that some manufacturers of straw hats were taking advantage of the seasonal provisions to include the manufacture of felt hats also. These facts, together with the changing character of this industry, led to the revocation. There was very little opposition to the change at the time, and it has since been generally accepted as a logical change of our rules by the hat trade.

Hurricane

On September 21 the state was visited by a hurricane and certain areas were also affected by flood. Inspectors in these districts were reached immediately by telephone, telegram and radio to report at various stations to render whatever assistance possible to persons in these territories. Under the authority vested in the commissioner as Food and Fuel Administrator of the Commonwealth, our inspectors were appointed deputy administrators with power to seize food, fuel and clothing where necessary.

The following statement, issued by the commissioner at the time, published by the press and broadcast extensively by radio, gives some idea of the enormity of the problem:

"I wish to announce to the people of the commonwealth that, although the waters have apparently started to subside, there are sections of the state where food, fuel and other necessaries of life will be difficult to obtain. It is possible that some dealers might seize this opportunity to profit from the great demand for these products. I earnestly request the merchants to cooperate with us in this critical time, and to be fair to those who are suffering such great losses.

"To any person who fails to heed this plea, I issue this warning, that my industrial inspectors have been instructed to report any attempt to take advantage of the misery of those unfortunate residents who are affected by this disaster by profiteering, and that not only will violators be prosecuted in the courts under the law, but each inspector is appointed as my deputy, with power to confiscate any food, fuel or other necessaries of life, and distribute it without cost to those who are in need. This includes rents of rooms and houses in or near the flooded areas.

"Massachusetts has no place for anyone who is unscrupulous enough to profit on human suffering, and no effort will be spared to bring him to justice."

Our inspectors, both industrial and building, were of inestimable value to the communities they visited and being men of exceptional training, were well qualified to handle this emergency. Their intimate knowledge of industrial conditions in the localities enabled them to render first aid service of a high type. One of our inspectors, a Red Cross nurse, whom we had not reached, reported at a Red Cross office, volunteering for work before the office itself had been set up to do the work. A brief summation of what our inspectors did in the succeeding days proves how valuable they were to the communities.

Our inspectors worked in conjunction with health and city officials. They condemned contaminated foods and impure drinking water. Tons of meat were destroyed, salvaged food supplies were checked and inventoried and wholesalers were contacted and arrangements made to return certain water soaked food. This saved these retailers, generally small business men who had already suffered heavy losses, this additional loss and the public health was also safeguarded by these damaged goods being withdrawn from sale.

They bought clothing and took charge of procuring and forwarding several truckloads of food and fuel to stricken areas. They made surveys of hospitals and in one instance, finding a shortage of supplies, contacted the State House by radio (other methods of communication being impossible) and through the cooperation of the Department of Public Safety, supplies were forwarded immediately by auto and airplane to the hospital.

Our building inspectors surveyed stricken areas and offered recommendations to town officials on condemning, repairing or altering damaged buildings. They also assisted individual home owners who suffered losses. What work was done in that direction can be gleaned from the fact that in one town 600 were homeless, in another 350. In one of the beach areas where we rendered assistance, people had nothing left except the clothes they wore.

In one community our inspectors found that because of the loss of a bridge through flood conditions the people in that territory had to travel miles to get food supplies. With the assistance of men from the Department of Public Safety and WPA workers, a pontoon bridge was constructed within a very short period of time, saving these harassed people miles of travel. In the work of investigating increased costs for material, it was found that one large distributor of building material was increasing prices on cement, shingles and lumber, but after our inspector conferred with him the former prices were re-established. A large retailer of window glass informed our inspectors that factories and wholesalers were discontinuing trade discounts. He was advised to deduct his usual discounts and if the matter was disputed to notify us. We heard nothing further from the incident.

In several towns there were threatened shortages of gasoline. Our inspectors visited all gas stations and owners were requested to restrict sales to official town trucks and necessary commercial users.

Apart from these instances of increased prices, no other proposed increases were found and in fact, in many communities, our inspectors reported that prices were decreased in the communities.

In certain communities our inspectors were the first persons to reach the stricken areas.

We wish to record here the splendid cooperation all our inspectors reported that they received from the local and town authorities and particularly from the state police all over the commonwealth. They worked day and night with our staff and were most cooperative.

Work in the Branch Offices

Our five branch offices perform very necessary work and are an important part of the department. In the Worcester office there are five industrial inspectors and two inspectors of building operations; in Lawrence there are four industrial inspectors; in Fall River there are three industrial and one building operations inspectors; in Springfield there are two industrial and one building operations inspectors, and in Pittsfield there is one industrial inspector.

In all these offices a full time stenographer is employed. The following tabulation of the various subjects on which information was sought gives an approximate idea of the work of the branch offices:

Weekly payment of wages, 2,603; painting rules and regulations, 1,767; posting of time notices, 1,149; labor law bulletins, 572; reports on inspections made, 434; riggers' examinations, 296; minimum wage, 256; Sunday work and one day's rest in seven, 245; holiday employment, 143; wage and hour law, 131; workmen's compensation, 128; public works, 83; discharge without notice, 80; hawkers' and pedlars' licenses, 79; unemployment compensation and social security, 75; school certificates, 75; public exhibition of children, 57; complaints, 46; court procedure, 37; homework, 26; building operations, 25; deductions from wages, 22; sanitation, 21; and miscellaneous, 268.

Miscellaneous includes inquiries concerning employers' insurance for employees, discharge of employees nearing retirement age, cuts in wages

without notice, attaching wages, wages on a commission basis, fees charged by employment offices, civil service, new concerns and strikes and lockouts.

The total number of calls recorded during the year was 8,618.

School Certificates

During the past year the department distributed certificates to superintendents of schools throughout the state as follows:

Physician's certificate of health	60
Promise of employment	3,620
School record	1,890
Employment certificate (regular)	940
Employment certificate (special)	1,655
Employment certificate (non-resident)	115
Employment certificate (temporary)	2,275
Employment certificate (limited)	275
Home employment permit	2,105
Co-operative employment certificate	1,640
Educational certificate (regular)	65,500
Educational certificate (special)	450
Physician's record	715
	$81,240

Legislation

From year to year the work of the division changes by amendments to the law, either by additions to or repeal of existing statutes. The following laws effecting our work were passed during this year:

Chapter 68 — to suspend for one more year the 6 o'clock law, so-called, relating to women in the textile industry.

Chapter 245 — which permitted florists' shops to be kept open on Memorial Day.

Chapter 413 — which established a minimum wage of $5 per an 8-hour day for laborers employed by the Department of Public Works and by the Metropolitan District Commission, amending section 26 of chapter 149 of the General Laws.

Chapter 67 — which regulated the employment of certain persons by the Department of Public Works, providing that 75% of the employees on the construction, reconstruction, alteration or repair of public works, other than persons in civil service positions, be residents of the highway district, adding this to chapter 149 of the General Laws as section 27c.

Chapter 361 — an Act providing security for payment for certain equipment and appliances employed in the construction of public buildings and other public works, amending section 29 of chapter 149 of the General Laws.

Chapter 438 — An act requiring contractors on public buildings and other public works to provide and continue in force during the full term of the contract insurance under the Workmen's Compensation Law, adding this to chapter 149 of the General Laws as section 34a.

Chapter 320 — which amended our one day's rest in seven law to certain employees, providing that the day should include an unbroken period comprising the hours between 8 o'clock in the morning and 5 o'clock in the evening, amending section 48, chapter 149 of the General Laws.

Chapter 295 — relative to the allowance of hours for meals for women and children employed in factories and work-shops, amending section 101, chapter 149 of the General Laws.

Chapter 403 — requiring employers to furnish certain information to employees relative to deductions from wages for social security and unemployment benefits, adding this to chapter 149 of the General Laws as section 150a.

Chapter 419 — relative to bids and contracts for state printing and binding and furnishing office supplies. This act gives the Commissioner of Labor and Industries power to determine the prevailing rate of wages and to prepare and furnish for the use of the Commission on Administration and Finance a list of the several classifications, together with the prevailing rate of wages and working hours of employees in the printing and binding trades.

During the past year the division has been called upon to furnish information to various state and federal agencies. We are always glad to respond to these calls. The U. S. Department of Labor maintains very close contact with us. During this year they published an inspectors manual which they set up as a model to be followed by all states. It follows in great part the practices of this department. While the manual was being prepared employees of the U. S. Department of Labor came here and studied our system. These U. S. representatives visited other states also, so it is a source of gratification to us that our system was used to such an extent in the federal model.

The division retained its membership in both state and national safety council organizations. Our inspectors addressed employees and foremen groups in various establishments. We have had representation at all the important safety conferences held in the state during the year.

The director of the division represented the department at a conference held at Washington in February on administrative problems in connection with industrial homework.

Summing up our year's work its most important factor, as always, has been the daily work of the inspection staff.

In the matter of new legislation the statutes of most far-reaching consequence were the acts requiring contractors on public works to provide and continue in force for the life of the contract, insurance under the workmen's compensation law. Secondly, the act extending the one day's rest in seven law to certain employees, and a more important feature of this law that the day should include an unbroken period comprising the hours between eight o'clock in the morning and five o'clock in the evening. Third, the act giving the commissioner power to determine the prevailing rate of wages in the printing and binding trades for firms seeking state contracts.

Showing how closely we follow trade trends and practices, we note our revocation of the straw hat industry as a seasonal one.

The work performed during the hurricane gave a large number of taxpayers who never before had any close contacts with our office a more vivid realization of our value to the community.

Thus we record the story of our work in 1938.

COMPARATIVE TABULATION OF WORK ACCOMPLISHED

By Years:	1914	1920	1930	1938
Inspections:				
Mercantile	–	9,410	20,555	29,571
Mechanical and manufacturing	28,858	6,563	15,877	13,379
Building operations	–	5,426	8,296	11,651
Reinspections	–	12,526	13,180	10,355
Visits:				
Complaints	–	1,369	2,736	4,439
Accidents	–	979	1,719	1,271
Occupational disease	–	69	834	330
Homework	–	2,196	256	1,761
All other	–	2,330	–	2,699
Total inspections and visits	–	40,868	63,453	75,456
Complaints:				
Minors	–	184	47	82
Health and sanitation	–	232	80	128
Time notices	–	27	13	57
Overtime	–	351	433	713
Public works	–	56	153	4
Non-payments	–	773	2,222	2,679
Illegal advertising	–	42	5	2
Unguarded machinery	–	17	9	4
Building operations	–	41	32	432
Labor	–	48	27	302
Miscellaneous	–	11	–	–
	–	1,782	3,021	4,403
Orders:				
Labor	9,396	9,801	7,028	9,585
Health	2,268	4,895	4,077	5,075
Safety	1,530	3,801	2,085	2,147
Building	–	–	723	788
Painting	–	–	1,593	1,216
Public works	–	–	229	226
	13,194	18,497	15,735	19,037
Home work licenses	6,000	2,139	251	1,584
Total number of prosecutions	81	295	768	863
Guilty	63	252	604	645
Not guilty	18	19	49	28
All other	–	24	115	190
Wages paid after complaint	–	$5,749.55	$59,876.99	$54,587.10
Appropriation	–	$127,900.00	$167,000.00	$169,000.00
Expenditures	–	$124,597.00	$163,899.86	$168,853.92

REPORT OF THE BOARD OF CONCILIATION AND ARBITRATION

THOMAS F. CURLEY, *Chairman;* RAYMOND V. MCNAMARA, JOHN L. CAMPOS

ARBITRATION

On December 1, 1937, fifteen joint applications for arbitration were pending During the year 311 joint applications were filed, making a total of 326. Of these 33 were abandoned, withdrawn or settled; decisions were rendered in 278 cases, also six supplemental decisions; eight cases are now pending. One petition for a certificate of normality was filed, which was later withdrawn. This is an increase of twenty-one per cent in cases settled over 1937.

In its arbitration work the Board has found both parties to the submission to be most cooperative and appreciative of the responsibility accepted by the Board and have accepted the Board's awards in that spirit, thus demonstrating the value of this means of adjusting differences arising between employer and employees without a cessation of work. Where a cessation of work has occurred, the Board insists on an immediate resumption of employment, without discrimination to strikers, pending arbitration of the issues involved, as the sound policy of the Board has been not to arbitrate until employment is resumed.

Conciliation

The duty of the Board under the law calls for the Board in the case of a labor dispute to contact the representatives of both parties and arrange for a conference before any actual cessation of work occurs. In many instances this has resulted in the prevention of a serious strike, with its accompanying loss to the employer, employee and public.

The confidence which employers and employees have in the Board is evidenced by the fact that practically all lines of industry have availed themselves of the good offices of the Board during the past year, and, to such an extent, that the Board has been obliged on many occasions to work far into the night and even on Sunday in its efforts to maintain industrial peace in the commonwealth, handling as it did 311 cases, or an increase of approximately twenty-two per cent over the conciliation cases for 1937.

In many instances, as a result of the Board's activities in its capacity as conciliators, settlements have been reached whereby the parties agree to submit any differences which they are unable to adjust themselves to the Board for determination, or to a local board, the decision to be final and binding on both parties for at least six months, or such time as both sides may mutually agree upon.

List of Industries Affected and Principal Differences in Conciliation and Arbitration Cases

Conciliation

Automobiles
Bakers
Barbers
Beef
Beverages
Boiler Works
Brewers
Building Materials
Caskets
Chauffeurs
Coat & Apron Supply
Curtain
Candy
Cleaners
Clothing Manufacturers
Coal
Cold Storage
Concrete
Construction
Cotton
Cut Soles
Dairy
Dentists
Dress Manufacturers
Drugs
Dyeing
Electrical Goods
Electrotyping
Engineers
Engraving
Express
Fish
Fruit
Furniture
Garage
Gas
Granite Works
Grocers
Heat and Power
Hardware
Hides
Hotels
Hosiery
Last Manufacturers
Laundries
Leather
Linen
Liquor
Longshoremen
Lumber
Markets
Matches
Movers
Newspapers
Oil
Oil Burners
Opticians
Paint Shop
Patent Leather
Paper
Pharmacal
Petroleum
Produce
Publishers
Quarries
Railroads
Rubber Footwear
Restaurants
Rubber Goods
Sand and Gravel
Shoes
Steel
Stores
Tacks
Textiles
Theatres
Transportation
Upholstering
Warehouses
Wire
Woolens

Principal Differences: Wages, Hours, Working Conditions, Discharge, Discrimination, Union Recognition, Terms of Argeement, Removal.

Arbitration

Auto Repair Companies
Baking
Bituminous Products
Blouse Manufacturing
Building Materials
Brick Company
Can Company
Candy Makers
Chemical Packaging
Cigar Manufacturing
Cleansers and Dyers
Dairy
Dental Laboratory
Distillers
Educational Materials
Food Market
Fish Dealers
Fuel Dealers
Fruit and Produce Dealers
Furniture Dealers
Grocery Stores
Heat and Power
Hotels
Importers
Kitchen Equipment
Laundries
Leather
Liquor Dealers
Lumber Dealers
Movers
Paper Bags
Publishing
Retail Drug Stores
Rubber Company
Sand and Stone
Saw Mills
Sausage Manufacturers
Shoes
Silver
Spinning and Dyeing
Stationery Manufacturer
Textiles
Transportation
Upholstering

Issues Arbitrated: Wages, Seniority, Hours, Discharge, Working Conditions, Discrimination, Violation of Agreement, Interpretation of Agreement, Working Agreement.

REPORT OF THE MINIMUM WAGE COMMISSION

Thomas F. Curley, *Chairman;* Raymond V. McNamara, John L. Campos, Mary E. Meehan, *Executive Secretary*

Chapter 430, 1936; Chapter 401, 1937

Outline of Functions

The duties of the Commissioner of Labor and Industries and of the Minimum Wage Commission under the law comprises the following functions:

1. The commissioner shall have the power, and it shall be his duty on the petition of fifty or more citizens of the commonwealth, to cause an investigation to be made by any of his authorized representatives, of the wages paid to women or minors in any occupation in order to ascertain whether any substantial number of women or minors in such occupation are receiving oppressive and unreasonable wages.

2. If, on the basis of information in the possession of the commissioner, with or without special investigation, he is of the opinion that any substantial number of women or minors in any occupation or occupations are receiving oppressive and unreasonable wages, he shall direct the commission to appoint a wage board to report upon the establishment of minimum fair wage rates for such women or minors in such occupation or occupations.

3. If the report is disapproved the commission shall resubmit the matter to the same wage board or to a new wage board. If the report is approved the commission shall transmit it to the commissioner, who shall issue a directory order which shall define minimum fair wage rates in the occupation or occupations as recommended in the report of the wage board and such directory order shall include the regulations as approved by the commission.

4. At any time after a minimum fair wage order has been in effect for one year or more, whether during such period it has been directory of mandatory, the commissioner may on his own motion and shall on petition of fifty or more citizens of the commonwealth reconsider the minimum fair wage rates established therein and direct the commission to reconvene the same wage board or appoint a new wage board to consider and recommend whether and to what extent, if any, the rate or rates contained in such order should be modified.

5. To investigate and ascertain the wages of women and minors employed in any occupation in the commonwealth.

6. If the commissioner has reason to believe that any employer is not observing any directory or mandatory order, the commissioner may, on fifteen days' notice, summon such employer to appear before the commissioner to show cause why the name of such employer should not be published as having failed to observe the provisions of such order. After a hearing and the finding of nonobservance of such order by the commissioner, he may cause to be published in such newspaper or newspapers within this commonwealth or in such other manner as he may deem appropriate, the name of any such employer or employers as having failed in the respects stated to observe the provisions of such order.

7. At the request of any woman or minor paid less than the minimum wage to which such woman or minor is entitled under a mandatory minimum fair wage order the commissioner may take an assignment of such wage claim in trust for the assigning employee and may bring any legal action necessary to collect such claim, and the employer shall be required to pay the costs and such

reasonable attorney's fees as may be allowed by the court. The commissioner shall not be required to pay a filing fee in connection with any such action.

Under the provisions of this chapter the commissioner, or his authorized representative, shall have full power and authority:

1. To investigate and ascertain the wages of women and minors employed in any occupation in the commonwealth:

2. To enter the place of business or employment of any employer of women and minors in any occupation for the purpose of examining, inspecting and making a transcript of any and all books, registers, payrolls, and other records of any employer of women or minors that in any way appertain to or have bearing upon the question of wages of any such women or minors and for the purpose of ascertaining whether the orders of the commissioner have been and are being complied with; and

3. To require from such employer full and correct statements in writing when the commissioner, or his authorized representative, deem necessary, of the wages paid to all women and minors in his employ, such statements to be under oath or accompanied by a written declaration that they are made under the penalties of perjury.

4. To carry out the provisions of this chapter.

Legislation in 1938

The Emergency Minimum Wage law, which became effective on May 29, 1937, has been in effect for eighteen months. During this period the Commission has been successful in securing satisfactory results. The Commission did feel, however, that legislation should be enacted to prevent any attempt to evade the law. Consequently, a bill was filed with the General Court to forestall this possibility. Following is a copy of the act as passed:—

> Section nineteen of chapter one hundred and fifty-one of the General Laws, as appearing in section one of chapter four hundred and one of the acts of nineteen hundred and thirty-seven, is hereby amended by adding at the end the following new paragraph:—
>
> (4) No person shall, for purpose of evading this chapter, establish any arrangement or organization in his business, by contract, lease or agreement, whether written or oral, whereby a woman or minor who would otherwise be an employee of such person does not have the status of an employee. If the commissioner is of the opinion that any person has established an arrangement or organization in violation of this paragraph, after a public hearing, due notice whereof shall have been given, and at which a reasonable opportunity to be heard has been afforded to such person, he may order such person to cease and desist from such violation; and such an order shall be subject to review under section fourteen in the same manner and to the same extent as any decision of the commissioner under this chapter. Any person so ordered to cease and desist who fails to comply therewith for thirty days after such order has been served upon him shall be punished by a fine of not less than one hundred dollars or by imprisonment for not less than ten nor more than ninety days, or both such fine and imprisonment. *(Approved April 26, 1938).*

Outline of Activities

At the close of the 1937 fiscal year, three wage boards were still in session, namely, those for the bread and bakery products, pocketbook and leather goods and paper box industries. The recommendations for these boards were accepted by the Commission. The determinations of the bread and bakery products and pocketbook and leather goods industries became effective as directory orders on May 1, 1938, and those for the paper box industry on August 1, 1938.

Wage boards were established for the millinery; knit goods; canning and preserving, minor lines of confectionery and food preparations; office and other building cleaners; and beauty culture occupations.

The millinery and the canning and preserving, minor lines of confectionery and food preparations wage boards have submitted their reports, which have

been accepted by the Commission and declared directory orders effective October 1, 1938, and December 1, 1938, respectively.

The boards for the office and other building cleaners, knit goods, and beauty culture occupations are still in session at the close of the fiscal year. The delay in these reports is due to the fact that the boards were reconvened to consider further such problems as arose at the public hearings.

The Commission is also setting up a wage board for the jewelry and related lines occupation. This is the second board under the mandatory law for this particular industry. The first board, which was in session in 1937, was dismissed by the Commission, who felt that the rates submitted were not in accord with the trend of the times.

Following is a detailed outline of the occupations and their directory and mandatory dates:—

Occupation	Directory Date	Mandatory Date
Bread and Bakery Products	May 1, 1938	Nov. 1, 1938
Pocketbook and Leather Goods	May 1, 1938	Nov. 1, 1938
Paper Box	Aug. 1, 1938	Nov. 2, 1938
Millinery	Oct. 1, 1938	
Canning and Preserving, Minor Lines of Confectionery and Food Preparations	Dec. 1, 1938	

Investigation in 1938

Beauty Culture

An investigation in the beauty culture industry was made in the spring of 1938. Payroll transcripts were taken for the payroll period February to June, 1938. Records were secured for 555 women employed in 126 shops. The tabulation of the records showed that rates varying from $7.00 to $25.00 were paid for a full working week. As a result of this investigation the Commission voted to form a wage board for the beauty culture occupation; and authorized letters sent to all employers as well as a large number of employees in the industry, requesting nominations for wage board members. The board convened for its first meeting on October 26, 1938, and is in session at the present time.

Inspections

Inspections which were initiated following the declaration of mandatory provisions were continued during 1938. These inspections included the following occupations: boot and shoe cut stock and findings; bread and bakery products; candy; druggists' preparations, proprietary medicines and chemical compounds; electrical equipment and supplies; laundry and dry cleaning; men's clothing and raincoat; men's furnishings; paper box; pocketbook and leather goods; retail store; stationery goods and envelopes; toys, games and sporting goods; women's and children's underwear, neckwear and cotton garment; and women's clothing. Inspections were also made in occupations that were operating under directory orders or decrees as follows: canning and preserving, minor lines of confectionery and food preparations; jewelry and related lines; knit goods; millinery; and office and other building cleaners. Inspection under the corset industry was initiated during the year and is still in process at the close of the fiscal year.

Disposition of Cases of Non-Compliance in the Regular Inspection Work:

In the regular inspection work 5,464 cases of non-compliance were found in 465 establishments. This represents a great improvement over the conditions found last year, and is doubtless due to the mandatory orders which became effective during the year.

Adjustment: In the cases settled, wages were raised for 929 employees in 166 establishments. Two hundred and three employees in 67 firms either left,

or were laid off or discharged. Adjustment by change of work, hours or method of payment whereby the employees were able to earn the minimum rate, were made in 189 cases in 25 establishments. Adjustment was promised or reported in 1,453 additional cases in 160 establishments. Twelve employees in 6 firms were incorrectly recorded. Seven firms employing 153 women were reported as out of business. Seventeen employees in seven establishments were covered by the special license provisions. There were 19 employees in four establishments covered by the piece rate ruling. This ruling provides that in the case of experienced operators where the great majority are earning the minimum or over, the rates are considered in accordance with the order. Three employees in three firms were considered as technical compliance.

Cases Pending: At the close of the year, 2,486 cases were pending in 96 establishments.

Reinspections

Reinspections have also been made under the majority of decrees to ascertain whether or not compliance has been effected as promised, following complaints.

In addition to the regular and reinspection visits, home work has been found in eight firms employing 193 employees in the boot and shoe cut stock and findings; men's furnishings; pocketbook and leather goods; stationery goods and envelopes; and toys, games and sporting goods occupations. Incidental to the above visits, 19 firms employing 1,017 women and minors were visited, which were not covered by any order or decree.

In the regular inspection work, wage records were secured for 46,814 women and minors in 1,848 establishments. In addition, 9,698 reinspection records were taken under thirteen orders, including 323 establishments. These figures include home work inspections and occupations visited that were not covered by any order, making a total of 57,722 records in 2,198 establishments.

Complaints

During the year complaints were registered with the Commission from 161 employees who received less than the minimum rate to which they were entitled under the provisions of the minimum wage law. All of the cases were investigated and some form of adjustment secured. Among the industries where violations were found are the boot and shoe cut stock and findings; bread and bakery products; candy; canning and preserving, minor lines of confectionery and food preparations; jewelry and related lines; knit goods; laundry and dry cleaning; men's clothing and raincoat; men's furnishings, millinery, office and other building cleaners; paper box; pocketbook and leather goods; retail stores; stationery goods and envelopes; toys, games and sporting goods; women's clothing; and women's and children's underwear, neckwear and cotton garment.

Adjustments were made in the above-mentioned complaints as follows: 51 employees in 16 establishments had their wages increased to meet the minimum; two employees in two establishments had their hours reduced to comply with the rates received; one employee reached a satisfactory settlement with her employer without the aid of the Commission; six firms employing ten workers were reported out of business at the time of inspection; eleven establishments employing 18 employees reported or promised adjustments; complaints were found not to be justified upon inspection in 17 cases in six establishments; eleven employees in six establishments were reported as left or discharged; 21 employees in nine establishments were found to be receiving the minimum at inspection; and eight cases in six establishments were pending further inspection at the close of the year. Twenty-two complaints were received from employees in 21 firms that were not covered by any order or decree. A table showing the above mentioned adjustments will be found later in the report.

Complaints Received During the Year and Method of Adjustment

Industry	Number of Complaints	Wages Raised	Hours Reduced to Comply	Full Compliance at Inspection	Outside Settlement	Firm Out of Business	Left, Laid Off or Discharged	Adjustment Promised or Reported	Not Under Any Order or Decree	Complaint Not Justified	Further Inspection Necessary
Boot and shoe cut stock and findings	9	2	–	2	1	1	2	–	1	–	–
Bread and bakery products	2	–	–	–	–	–	1	1	–	–	–
Candy	4	1	–	2	–	–	–	1	–	–	–
Canning and preserving	3	1	–	–	–	1	–	–	–	–	1
Jewelry and related lines	2	2	–	–	–	–	–	–	–	–	–
Knit goods	1	–	–	1	–	–	–	–	–	–	–
Laundry and dry cleaners	18	4	–	3	–	1	1	2	–	6	1
Men's clothing and raincoats	9	3	–	2	–	–	1	1	–	2	–
Men's furnishings	4	2	1	1	–	–	–	–	–	–	–
Millinery	8	1	–	3	–	–	–	2	–	–	2
Office and other building cleaners	2	2	–	–	–	–	–	–	–	–	–
Paper box	5	1	–	–	–	–	–	2	–	–	2
Pocketbook and leather goods	7	3	–	1	–	–	–	1	–	1	1
Retail stores	53	24	1	6	–	5	5	4	2	6	–
Stationery goods and envelopes	3	2	–	–	–	–	–	1	–	–	–
Toys, games and sporting goods	1	1	–	–	–	–	–	–	–	–	–
Women's clothing	6	1	–	–	–	1	–	2	–	1	1
Women's and children's underwear, neckwear and cotton garments	5	1	–	–	–	1	1	1	–	1	–
Not covered by any order	19	–	–	–	–	–	–	–	19	–	–
	161	51	2	21	1	10	11	18	22	17	8

Retroactive Wages

Subsequent to the declaration of the ten mandatory orders in October 1937, the Minimum Wage Commission has been very successful in collecting retroactive wages as the result of complaints received. Following is a table showing the occupations in which claims were settled on the retroactive basis.

Minimum Wage Claims Settled on Retroactive Basis
1938

Industry	Number of Firms	Number of Employees	Total Amount Collected
Boot and Shoe Cut Stock and Findings	1	8	$233.06
Bread and Bakery Products	1	1	20.00
Laundry and Dry Cleaning	2	4	174.85
Men's Clothing and Raincoat	2	2	50.00
Retail Store	16	18	803.06
Women's Clothing	2	2	50.01
Paper Box	1	2	12.32
	25	37	$1,343.30

Orders Issued

During the fiscal year, directory orders were declared for six occupations covered by minimum wage rates, namely: druggists' preparations, proprietary medicines and chemical compounds; bread and bakery products; pocketbook and leather goods; paper box; millinery; and canning and preserving, minor lines of confectionery and food preparations. Four of these six orders—druggists' preparations, proprietary medicines and chemical compounds; bread and bakery products; pocketbook and leather goods; and paper box—were made mandatory at the expiration of the three months' directory order period. Following is a table listing orders and their effective dates:

Industry	Directory Order Date	Mandatory Order Date
Druggists' Preparations, Proprietary Medicines and Chemical Compounds	Mar. 1, 1938	Nov. 1, 1938
Bread and Bakery Products	May 1, 1938	Nov. 1, 1938
Pocketbook and Leather Goods	May 1, 1938	Nov. 1, 1938
Paper Box	Aug. 1, 1938	Nov. 2, 1938
Millinery	Oct. 1, 1938	
Canning and Preserving, Minor Lines of Confectionery and Food Preparations	Dec. 1, 1938	

Summary

A survey of the work accomplished by the Minimum Wage Commission shows interesting results.

The work of bringing the old decrees within the provisions of the mandatory law was continued. Five directory orders were established and seven were made mandatory. Of these seven, three orders had been accepted as directory orders during 1937.

The Commission secured actual adjustments in 1,516 cases as the result of inspection, while adjustment was promised or reported in 1,393 cases. The amount collected in retroactive pay was substantially larger than last year, since the law covers more orders with mandatory provisions.

With the inclusion of nine additional orders since the last report, it is estimated that approximately 120,000 employees are covered by the orders now in effect.

The Legislature, realizing the importance of adequate enforcement of the minimum wage law, voted to grant the Commission two additional agents for the advancement of the inspection work. Provision was also made for additional office workers.

The enactment of the federal Fair Wage and Hours law has been helpful in eliminating child labor. It has raised the standards of wages and hours in those industries which are not yet covered by Massachusetts minimum wage orders. The federal enactment does not supersede the Massachusetts minimum wage law. The higher scale of wages and the shorter working week take precedence.

The Commission expects during the coming year to continue the work of establishing wage boards and bringing new occupations under their jurisdiction.

Chronology of Minimum Wage Legislation and Court Decisions

May 11, 1911. Resolution providing for the appointment of a commission to investigate the wages of women and minors and to report on the advisability of establishing minimum wage boards. (Acts and Resolves of 1911, chapter 71.)

January 10, 1912. Report of Commission on Minimum Wage Boards to Legislature recommending establishment of permanent Commission. (House Bill No. 1697 of 1912.)

June 4, 1912. Enactment of measure establishing Minimum Wage Commission and providing for the determinations of minimum wages for women and minors. (General Laws, chapter 151.)

March 21 1913. Amendment to facilitate the gathering of information relative to the wages of women and minors. (General Laws, chapter 151, section 8.)

May 19, 1913. Amendment to increase the powers and further define the duties of the Minimum Wage Commission. (General Laws, chapter 151, sections 3, 4 and 10.)

April 17, 1914. Amendment relative to the determination of minimum wages for women and minors. (General Laws, chapter 151, sections 2, 4, 8 and 10.)

June 2, 1916. Amendment to establish certain qualifications for members of the Minimum Wage Commission. (General Acts of 1916, chapter 303.)

December 12, 1917. Argument of test case involving constitutionality of Minimum Wage Law. (Holcombe v. Creamer, 231 Mass. 99.)

September 24, 1918. Decision of Supreme Judicial Court of Massachusetts upholding constitutionality of Minimum Wage Law. (Holcombe v. Creamer, 231 Mass. 99.)

April 3, 1919. Amendment to provide for filling vacancies on wage boards. In effect July 2, 1919. (General Laws, chapter 151, sections 1 and 2.)

April 4, 1919. Amendments to require employers to keep records of the working hours of women and minors in certain cases, and to provide for the posting of notices of hearings, nominations for wage boards, and of decrees of the Minimum Wage Commission. In effect July 3, 1919. (General Laws, chapter 151, sections 8 and 14.)

July 23, 1919. Act to organize in departments the executive and administrative functions of the Commonwealth. By this act the Minimum Wage Commission was abolished and its functions transferred to the three associate commissioners of the Department of Labor and Industries, who are designated the Minimum Wage Commissioners when dealing with minimum wage matters, and the Board of Conciliation and Arbitration when dealing with conciliation matters. (General Laws, chapter 23.)

December 1, 1919. Consolidation act in effect.

February 20, 1920. Amendment to allow the Commission more freedom in the choice of wage board members. In effect May 21, 1920. (General Laws, chapter 151, section 2.)

April 30, 1920. Amendment to allow Commission, upon petition of either employers or employees, or if in its opinion such action is necessary, to reconvene the wage board or establish a new wage board. In effect July 29, 1920. (General Laws, chapter 151, section 5.)

June 2, 1922. Appointment of a legislative Commission on Unemployment, Unemployment Compensation and the Minimum Wage, to study minimum wage law, its effect, and whether the law should be amended, made mandatory or repealed. (Chapter 43, Resolves of 1922.)

February 9, 1923. Report of Commission on Unemployment, Unemployment Compensation and the Minimum Wage, recommending in majority report that law be continued in its present form until such time has elapsed as will demonstrate whether or not the legislation has justified its mission.

February 9, 1923. Minority report recommending that the law be made mandatory. (House Bill No. 1325 of 1923.)

June 7, 1923. Test case brought against the "Boston Transcript" to determine constitutionality of sections 12 and 13 of chapter 151 of the General Laws requiring newspapers to publish the Commission's notices, and purporting to exempt the Commission and newspapers from action for damages for publications. (Commonwealth v. Boston Transcript Company, 249 Mass. 477.)

June 12, 1924. Decision of Supreme Judicial Court of Massachusetts declaring sections 12 and 13 of chapter 151 of the General Laws unconstitutional, reaffirming constitutionality of the law in its essential provisions as in decision in 1918, and stating that opinion of the United States Supreme Court of the District of Columbia, declaring minimum wage law unconstitutional, does not apply to Massachusetts law, since that law is recommendatory. (Commonwealth v. Boston Transcript Company. 249 Mass. 477.)

April 5, 1933. The act further penalizing certain employers who fail to keep, or unlawfully refuse to permit the inspection or examination of certain registers and records under Minimum Wage Law. (General Laws, chapter 110.)

May 26, 1933. Act to provide for the more effective enforcement of decrees of Minimum Wage Commission. After manufacturer's name has been published for violation of decree, the Commission may require employer to attach label or tag stating goods manufactured in violation of Minimum Wage Law. (General Laws, chapter 220.)

September 12, 1934. First mandatory Minimum Wage Law carrying provisions for the imposition of penalties for violations. (General Laws, chapter 308.)

May 17, 1935. Act relative to minimum wage decrees rendered prior to the effective date of the present law authorizing the establishment of mandatory minimum fair wage standards for women and minors. (General Laws, chapter 267.)

June 6, 1936. Second Minimum Wage Law (Department of Public Health). (General Laws, chapter 430.)

May 29, 1937. Third Minimum Wage Law enacted returning the administration of the law to the Department of Labor and Industries. (General Laws, chapter 401.)

April 26, 1938. Act prohibiting the evasion of the Minimum Fair Wage for Women and Minors Law. (General Laws, chapter 237.)

THE COMMONWEALTH OF MASSACHUSETTS

Minimum Wage Commission

Bread and Bakery Products Occupation

Mandatory Order Number 15

Minimum Fair Wage Standards for Women and Minors Employed in This Occupation

Basic Wage Rates:

No woman and no minor employed in any bread and bakery products establishment shall be paid less than the following rates:

A. Not less than $14.00 a week in cities with 100,000 and over population.

B. Not less than $13.00 a week in cities and towns with 25,000 to 100,000 population.

C. Not less than $12.00 a week in cities and towns with less than 25,000 population.

These rates are based on full-time work, by which is meant the full number of hours required by employers and permitted by the laws of the commonwealth.

Special Provisions:

Piece Rates: The wages paid piece workers shall be so adjusted that every woman or minor so employed shall earn for a given period of employment not less than the time wages herein prescribed for such period.

Waiting Time: Time during which employees are required to wait on the employer's premises and no work is provided by the employer, shall be counted as working time and paid for at the individual worker's regular wage rate.

Administrative Regulations

Definitions:

1. *Bread and Bakery Products Occupation*
   The above-named occupation includes the manufacture of bread, cakes, crackers and all other bakery products.
2. *Minors*
   Employees of either sex under 21 years of age.
3. *Employees*
   Women and minors employed in the bread and bakery products occupation.
4. *Mandatory Order*
   Date effective:—November 1, 1938.

Bread and Bakery Products Wage Board

List of Members

Representative of the Public

Mr. Sol C. Hamburger, *Chairman*, 260 Tremont Street, Boston

Representatives of Employers:

Miss Evelyn M. Bourgeois
Weston's Bakeries
Waltham

Mr. A. Clinton Abbott
Friend Bros.
Melrose

Mr. Charles E. Potter
National Biscuit Company
Cambridge

Representatives of Employees:

Mr. P. J. Leonard
392 Centre Street
Jamaica Plain

Miss Gertrude Lindstrom
209 Beech Street
Belmont

Miss Millicent Coughlin
6 Atlantic Avenue
Malden

THE COMMONWEALTH OF MASSACHUSETTS

Minimum Wage Commission

Pocketbook and Leather Goods Occupation

Mandatory Order Number 16

Minimum Fair Wage Standards for Women and Minors Employed in This Occupation

Basic Wage Rates:

No woman and no minor employed in the pocketbook and leather goods occupation shall be paid less than the following rates:

A. Not less than 35 cents an hour, or $14.00 for a week of 40 hours, with three or more months' experience.

B. Not less than 26¼ cents an hour, or $10.50 for a week of 40 hours, with less than three months' experience.

Any time worked over 40 hours shall be paid for on an hourly pro rata basis.

Special Provisions:

Piece Rates: The wages paid piece workers shall be so adjusted that every woman or minor so employed shall earn for a given period of employment not less than the time wages herein prescribed for such period.

Waiting Time: Time during which employees are required to wait on the employer's premises and no work is provided by the employer, shall be counted as working time and paid for at the individual worker's wage rate.

Administrative Regulations

Definitions:

1. *Pocketbook and Leather Goods Occupation*

   The above-named occupation includes the manufacture of pocketbooks, bags, brief cases, leather and imitation leather goods, suit cases, trunks, card cases, desk sets, dog collars and similar lines.

2. *Experienced Employees*
   Employees who have had at least three months' experience in the occupation.

3. *Minors*
   Employees of either sex under 21 years of age.

4. *Employees*
   Women and minors employed in the pocketbook and leather goods occupation.

5. *Mandatory Order*
   Date effective:—November 1, 1938.

Pocketbook and Leather Goods Wage Board

List of Members

Representative of the Public

Professor Carroll W. Doten, *Chairman*, 68 Garfield Street, Cambridge

Representatives of Employers:	*Representatives of Employees:*
Mr. Jacob Glasker Corliss Manufacturing Company Boston	Mrs. Josephine Antonellis 38 Beal Street Winthrop
Mr. Raphael Mutterperl Fairhaven Corporation New Bedford	Mrs. Hattie McMackin Lancaster
Mr. I. Schwartz Knight Leather Company Boston	Mr. Walter M. Ryan 49 High Street Clinton

THE COMMONWEALTH OF MASSACHUSETTS

Minimum Wage Commission

Paper Box Occupation

Mandatory Order Number 17

Minimum Fair Wage Standards for Women and Minors Employed in This Occupation

Basic Wage Rates:

No woman and no minor employed in the Paper Box occupation shall be paid less than the following rates:

A. Employees of ordinary ability, not less than 35 cents per hour.

B. Inexperienced Employees:—Less than six months' experience, not less than 30 cents per hour.

Special Provisions:

Piece Rates: If the employee is hired on Piece Rates or any other Incentive Basis, such rates must be fully posted or available to every employee in the room where the operations are conducted, and the employee must be informed that weekly compensation will not be less than the Minimum Fair Wages for time workers hereby established.

Employees' Experience Record: Every employer must, when requested by an employee upon leaving his employment, give to the employee a record of the length of service, stating the particular operations in which the employee has been engaged in that establishment or concern.

Waiting Time: Time during which employees are required to wait on the employer's premises and no work is provided by the employer shall be counted and paid for as working time. Piece workers during waiting time should be paid the highest minimum rate established; for other workers, their regular hourly rate.

Administrative Regulations

Definitions:

1. *Paper Box Occupation*
   This occupation includes establishments manufacturing set-up, folding and corrugated boxes. It includes plants manufacturing for the trade, as well as for their own consumption.
2. *Employees of Ordinary Ability*
   An employee shall be deemed of ordinary ability who has had at least six months' experience in the occupation.
3. *Occupations*
   All occupations connected with the manufacturing end of the business shall be covered by the Minimum Wage Rates.
4. *Minors*
   Employees of either sex under twenty-one years of age.
5. *Employees*
   Women and Minors employed in the Paper Box Occupation.
6. *Mandatory Order*
   Date effective:—November 2, 1938.

Paper Box Wage Board

List of Members

Representative of the Public

Professor Bernard S. McCarthy, *Chairman,* 363 Cambridge Street, Worcester

Representatives of Employers:

Mr. Harry Posner
Worcester Paper Box Company
Medford

Mr. James F. Reynolds
Stone & Forsyth
Everett

Mr. Edward Churchill
W. L. Douglas Shoe Company
Brockton

Representatives of Employees:

Mr. Joseph Dart
Journal Building
Boston

Mr. Edward Mangum
31 Easton Avenue
Pittsfield

Miss Mary Burt
315 Harvard Street
Cambridge

THE COMMONWEALTH OF MASSACHUSETTS

MINIMUM WAGE COMMISSION

MILLINERY OCCUPATION

Directory Order Number 18

Minimum Fair Wage Standards for Women and Minors Employed in This Occupation

BASIC WAGE RATES:

No woman and no minor employed in the Millinery occupation shall be paid less that the following rates:

1. *Front Shop*
   A. Not less than 35 cents an hour after 10 weeks' employment in the trade.
   B. Not less than 25 cents an hour for learners and apprentices during the first 10 weeks' employment in the trade.
2. *Back Shop*
   Not less than 35 cents an hour.

SPECIAL PROVISIONS:

Piece Rates: The wages paid piece workers shall be so adjusted that every woman or minor so employed shall earn for a given period of employment not less than the time wages herein prescribed for such period.

Waiting Time: The time which an employee spends on the premises after reporting for work and before he or she is released by the employer or requested to report at any future hour, shall be regarded as waiting time and shall be included in computing total hours worked within the week.

Administrative Regulations

DEFINITIONS:

1. *Millinery Occupation*
   The above-named occupation includes:
   A. The front shop, which manufactures all ladies', misses' and children's headwear (whether trimmed or untrimmed and of whatsoever material) manufactured or produced by blocking, operating, cutting or moulding, making, trimming, and all similar operations, and the finishing of men's and women's wool and fur felt hat bodies in the front shop.
   B. Workers on men's and women's wool and fur felt hat bodies in so-called back shop.
   C. Office employees and non-productive workers.
2. *Employees of Ordinary Ability*
   Women and minors having more than 10 weeks' experience in the trade, excepting in the cases of employees whose earning capacities are impaired and are within the definition given in Section 9 of Chapter 401 of the Acts of 1937.
3. *Minors*
   Employees of either sex under 21 years of age.
4. *Employees*
   Women and minors employed in the Millinery occupation.
5. *Directory Order*
   Date effective:—October 1, 1938.

MILLINERY WAGE BOARD

List of Members

Representative of the Public

Cornelius A. Parker, Esq., *Chairman*, 68 Devonshire Street, Boston

Representatives of Employers:

Mr. Alfred T. Barr
Merrimac Hat Company
Amesbury

Mr. Ira Singer
Singer Capeline Company
Boston

Mr. George I. Tofias
J. Tofias & Bros.
Medfield

Representatives of Employees:

Miss Celia Draisen
18 Angell Street
Dorchester

Mrs. Frances Neves
60 Lyman Street
Holyoke

Mr. Benjamin C. Roberts
291 High Street
Holyoke

THE COMMONWEALTH OF MASSACHUSETTS

MINIMUM WAGE COMMISSION

CANNING AND PRESERVING, MINOR LINES OF CONFECTIONERY AND FOOD PREPARATIONS OCCUPATION

Directory Order Number 19

Minimum Fair Wage Standards for Women and Minors Employed in This Occupation

BASIC WAGE RATES:

No woman and no minor employed in the Canning and Preserving, Minor Lines of Confectionery and Food Preparations occupation shall be paid less than the following rates:

1. Employees of ordinary ability, not less than $14.25 for a week of 44 hours, or 32.4c an hour, after the first six months' employment.
2. Learners and apprentices, not less than $11.00 for a week of 44 hours, or 25c an hour.

SPECIAL PROVISIONS:

Piece Rates: The wages paid piece workers shall be so adjusted that every woman or minor so employed shall earn for a given period of employment not less than the time wages herein prescribed for such period.

Waiting Time: The time which an employee spends on the premises after reporting for work at the employer's request and before he or she is released by the employer or requested to report at any future hour in any one day shall be regarded as waiting time and shall be included in computing total hours worked within the week.

Administrative Regulations

DEFINITIONS:

1. *Canning and Preserving, Minor Lines of Confectionery and Food Preparations Occupation*

   The above-named occupation includes:

   A. All occupations connected with the manufacture of the product.
   B. All non-productive workers.
   C. All clerical workers.

2. *Employees of Ordinary Ability*
   Women and minors who have had at least six months' experience in a given occupation in any manufacturing establishment within the scope of the Order, shall be considered of ordinary ability.

3. *Minors*
   Employees of either sex under 21 years of age.

4. *Employees*
   Women and minors employed in the Canning and Preserving, Minor Lines of Confectionery and Food Preparations occupation.

5. *Directory Order*
   Date effective:—December 1, 1938.

Canning and Preserving, Minor Lines of Confectionery and Food Preparations Wage Board

List of Members

Representative of the Public

Cornelius A. Parker, Esq., *Chairman*, 68 Devonshire Street, Boston

Representatives of Employers:

Dr. Henry Borg
Murray Company
Boston

Mr. Joseph Keating
Gorton-Pew Fisheries
Gloucester

Mr. Lucien H. LaRue
Joseph Middleby Company
Boston

Representatives of Employees:

Miss Eleanor Carangelo
378 North Street
Boston

Miss Mary Cronin
6 Greenville Court
Somerville

Miss Mary Cullen
152 River Street
Cambridge

Table 1.—Summary of Adjustments in Connection with Regular Inspections in 1938 Under Minimum Wage Orders and Decrees.

(C = Cases; E = Establishments)

Situation and Disposition of Cases	Boot and Shoe Cut Stock and Findings[1]		Bread and Bakery Products[1]		Candy[1]		Canning and Preserving, Minor Lines of Confectionery and Food Preparations[1]		Corset		Druggists' Preparations, Proprietary Medicines and Chemical Compounds[1]		Electrical Equipment and Supplies[1]		Jewelry and Related Lines[1]		Knit Goods[1]		Laundry and Dry Cleaners[1]		Men's Clothing and Raincoats[1]	
	C.	E.	C.	E.	C.	E.	C.	E.	C.	E.	C.	E.	C.	E.	C.	E.	C.	E.	C.	E.	C.	E.
Records for tabulation	1,982	159	345	23	2,721	43	124	8	130	9	100	6	2,988	22	131	5	244	3	5,828	393	2,725	93
Cases of non-compliance	533	64	136	10	14	7	22	2	13	2	10	4	13	5	12	4	1	1	92	54	605	38
Wages raised	221	28	1	1	6	3	–	–	8	1	–	–	2	1	–	–	–	–	50	26	72	13
Left, laid off or discharged	73	20	–	–	1	1	–	–	2	1	–	–	–	–	–	–	–	–	5	4	19	6
Change of work, hours or method of payment	14	4	–	–	5	3	–	–	–	–	–	–	–	–	–	–	–	–	–	–	3	3
Adjustment promised or reported	138	17	124	4	–	–	–	–	2	1	5	2	9	3	–	–	1	1	21	14	169	12
Incorrectly recorded	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Firm out of business	4	2	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	1	–	–
Special license type or similar case	1	1	1	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Technical non-compliance	–	–	–	–	1	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Covered by piece rate ruling	4	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	3	1	–	–
Pending	78	12	10	4	1	1	22	2	1	1	5	2	2	1	12	4	–	–	12	9	342	11

Table 1.—Summary of Adjustments in Connection with Regular Inspections in 1938 Under Minimum Wage Orders and Decrees.

(C = Cases; E = Establishments)

Situation and Disposition of Cases	Men's Furnishings[1]		Millinery[1]		Office and Other Building Cleaners[1]		Paper Box[1]		Pocketbook and Leather Goods[1]		Retail Stores[1]		Stationery Goods and Envelopes[1]		Toys, Games and Sporting Goods[1]		Women's and Children's Underwear, Neckwear and Cotton Garments[1]		Women's Clothing[1]		Total	
	C.	E.	C.	E.	C.	E.	C.	E.	C.	E.	C.	E.	C.	E.	C.	E.	C.	E.	C.	E.	C.	E.
Records for tabulation	3,747	80	1,662	17	245	27	845	39	1,440	22	6,829	661	2,665	39	925	26	9,150	78	1,787	85	46,814*	1,848*
Cases of non-compliance	595	28	73	6	101	4	166	13	284	17	572	135	42	8	46	11	1,884	32	250	20	5,464	465
Wages raised	112	9	–	–	–	–	11	2	–	–	238	61	20	5	–	–	95	4	93	12	929	166
Left, laid off or discharged	22	3	–	–	–	–	9	1	–	–	37	20	6	2	1	1	1	1	27	7	203	67
Change of work, hours or method of payment	18	3	–	–	–	–	–	–	1	1	52	9	–	–	–	–	–	–	96	2	189	25
Adjustment promised or reported	140	12	59	5	31	2	70	7	85	8	166	43	16	3	45	10	356	13	16	3	1,453	160
Incorrectly recorded	–	–	–	–	–	–	1	1	3	1	8	4	–	–	–	–	–	–	–	–	12	6
Firm out of business	–	–	–	–	–	–	–	–	–	–	23	2	–	–	–	–	125	2			153	7
Special license type or similar case	12	3	–	–	–	–	1	1	–	–	–	–	–	–	–	–	2	1			17	7
Technical non-compliance	–	–	–	–	–	–	–	–	–	–	2	2	–	–	–	–	–	–			3	3
Covered by piece rate ruling	9	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	3	1	–	–	19	4
Pending	282	6	14	1	70	2	74	3	195	7	16	12	–	–	–	–	1,302	11	18	4	2,486	96

[1]Incomplete inspection. Initial inspection started previous year.

*Includes 201 employees in 10 establishments in the Brush industry, where no violations were found.

REPORT OF THE DIVISION OF STATISTICS

Roswell F. Phelps, *Director*

Introduction

This report is the nineteenth annual report of the Division of Statistics and covers the work of the division during the year 1938. The principal branches of the work of the division are the collection and publication of statistics of labor and manufactures and the answering of inquiries relative to the industries of the commonwealth, the rates of wages, hours of labor, and the conditions of employment. These several branches of the work of the division during the year 1938 are discussed in this report.

The statistical data herein presented relate for the most part to the calendar year 1938, but data for certain prior years are also included for purposes of comparison, and charts showing, graphically, the trends of employment and earnings of wage-earners in the principal industries and municipalities in the commonwealth appear in the appendix. The results of the monthly surveys of employment and payrolls, the annual census of manufactures and of special investigations made by the division are here presented in summary form. Information in greater detail has been presented in separate printed reports and in numerous mimeographed press releases to which reference is made later in this report.

In addition to its regular work during the past year, the division made four special investigations as follows:

Compilation of Statistics Relative to the Textile Industry in Massachusetts, 1926 to 1938.

Survey of the Tourist Trade in Massachusetts in 1938.

Investigation Relative to Damages Caused by the Hurricane and Floods in September, 1938.

Compilation of Statistics of Strikes in Massachusetts in 1938.

These four special investigations are discussed in the section entitled "Special Investigations" on pages 62-70.

The division has also been called upon to furnish much information for the use of various private and governmental agencies and individuals and to answer numerous inquiries with reference to industrial changes which have occurred during recent years. In many cases special tabulations of the original records already available in the files of the division were made in order to supply the information desired. A statement relative to such inquiries appears in the section entitled "Information Service" on pages 70 and 71.

INDUSTRIAL TRENDS IN MASSACHUSETTS, 1925-1938

In discussing the industrial changes in Massachusetts, which have occurred during the period of 14 years (1925-1938) covered by this review, reference is made to the *manufacturing industries only,* but because of the predominance of the manufacturing industries in this state, nearly all other classes of business are largely dependent upon activity in the manufacturing industries.

In the following table data are presented for the years 1925-1938, inclusive, showing the average number of wage-earners employed in the manufacturing industries in the commonwealth, the amount paid in wages, the average annual earnings of those employed, the *real* value of their annual earnings, and the cost of living in Massachusetts, based on wage-earners' budgets. Corresponding index numbers for each of these items are also presented in the table. These index numbers have been computed, using as a base (100) the averages of the respective items for the three years, 1925-1927. The trends are shown, graphically, on the accompanying chart.

Employment. On reference to Table 1 and the accompanying chart, it will be observed that in 1938 the estimated number of wage-earners employed in

the manufacturing industries in Massachusetts was 403,219, which was less by 95,383, or 19.2 per cent, than the number, 498,602, reported as employed in the manufacturing industries in 1937. The decrease noted shows the effect of the "recession," which began toward the close of 1937 and from which there was no pronounced recovery in 1938.

Table 1.—Industrial Trends in Massachusetts, 1925-1938.

(Base—Average for three years, 1925–1927 = 100)

Years	Annual Statistics of Manufactures in Massachusetts			Index Numbers [2]				
	Average Number of Wage-Earners Employed [1]	Amount Paid in Wages During the Year [1]	Average Annual Earnings of Wage-Earners [1]	Average Number of Wage-Earners Employed [1]	Amount Paid in Wages during the Year [1]	Average Annual Earnings of Wage-Earners [1]	Cost of Living [3]	Real Value of Average Annual Earnings
Base [2]	*590,616*	*$720,097,884*	*$1,219.23*	*100.0*	*100.0*	*100.0*	*100.0*	*100.0*
1925	591,438	716,155,593	1,210.87	100.1	99.5	99.3	100.9	98.4
1926	602,343	738,208,510	1,225.56	102.0	102.5	100.5	100.7	99.8
1927	578,068	705,929,549	1,221.19	97.9	98.0	100.2	98.3	101.9
1928	540,927	670,063,291	1,238.73	91.6	93.1	101.6	98.6	103.0
1929	557,494	694,805,312	1,246.30	94.4	96.5	102.2	99.2	103.0
1930	481,449	573,838,044	1,191.90	81.5	79.7	97.8	95.7	102.2
1931	434,441	474,189,202	1,091.49	73.6	65.9	89.5	87.2	102.6
1932	350,521	334,358,550	953.89	59.3	46.4	78.2	78.8	99.2
1933	398,592	354,523,634	889.44	67.5	49.2	73.0	76.3	95.7
1934	423,933	408,617,489	963.87	71.8	56.7	79.1	81.8	96.7
1935	445,519	448,326,676	1,006.30	75.4	62.3	82.5	85.3	96.7
1936	481,432	514,599,251	1,068.89	81.5	71.5	87.7	85.0	103.2
1937 [4]	498,602	559,246,370	1,121.63	84.4	77.7	92.0	88.2	104.3
1938 [5]	403,219	424,188,372	1,052.00	68.3	58.9	86.3	86.5	99.8

[1] Compiled from reports of the Annual Census of Manufactures in Massachusetts for the years 1925 to 1937.

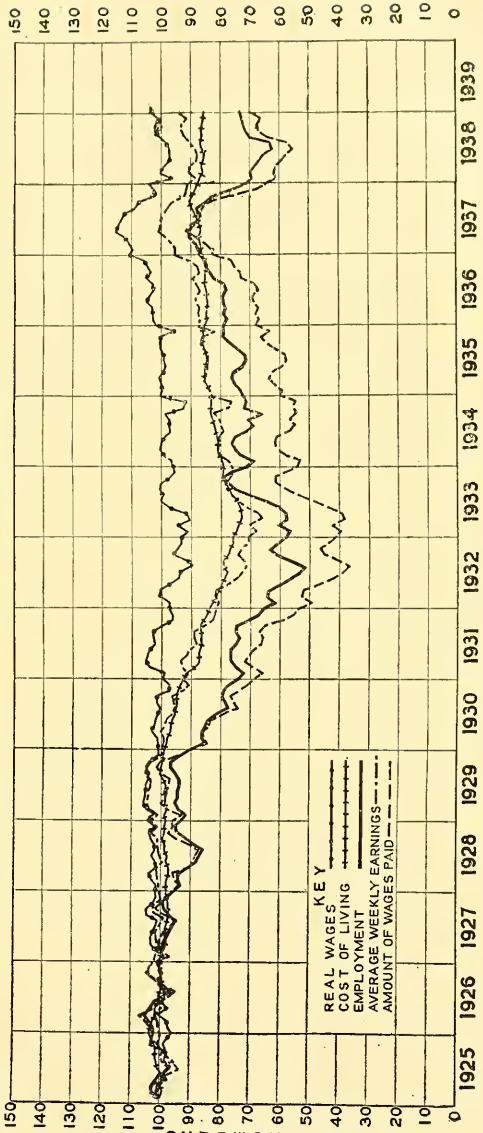
[2] In computing the index numbers, the average for the three years, 1925, 1926, and 1927, was taken as the base (100) in each case.

[3] Compiled from reports of the Division on the Necessaries of Life.

[4] Since the publication of the report for 1937, the final results of the annual census of manufactures in Massachusetts for the year 1937 have become available and are here substituted for the estimates published in that report.

[5] Estimates based on results of "Monthly Surveys of Employment and Earnings in Representative Manufacturing Establishments," by the Division of Statistics.

TRENDS OF EMPLOYMENT, EARNINGS AND REAL WAGES IN MANUFACTURING INDUSTRIES, AND COST OF LIVING IN MASSACHUSETTS, BY MONTHS, 1925-1938.



The estimated average number of wage-earners employed in the manufacturing industries in 1938 exceeded the number employed in 1932 (the worst year of the depression) by 52,698, or 15.3 per cent, but was less by 187,397, or 31.7 per cent, than the average number employed (590,616) during the three-year base period, 1925-1927 (a period of normal activity). The corresponding index numbers representing employment were: 68.3 in 1938; 84.4 in 1937; and 59.3 in 1932 (the lowest recorded during the entire period, 1925-1938).

The Wage Fund. In 1938 the total estimated amount of wages paid to wage-earners employed in all manufacturing establishments in the State was $424,188,372, which was less by $135,057,998, or 24.1 per cent, than the amount, $559,246,370, paid in 1937, but exceeded by $89,829,822, or 25.2 per cent, the amount ($334,358,550) paid in 1932. The corresponding index numbers representing the amounts paid in wages were: 58.9 in 1938; 77.7 in 1937; and 46.4 in 1932. On reference to the accompanying chart it will be observed that for several months in 1937 the line representing the amount of wages paid followed closely the line representing employment, but during the recession, which began in the latter part of 1937 and continued well into 1938, the downward trend of the line representing the amounts paid in wages was more pronounced than that of the line representing employment. This was due not only to decreases in the number of persons employed, but also to decreases in the number of hours worked by many of those employed, and to some decreases in the rates of wages per unit of time worked.

Annual Earnings of Employees. During the period of 14 years, 1925 to 1938, inclusive, the average annual earnings of wage-earners employed in the manufacturing industries in Massachusetts showed marked fluctuations. The highest recorded during the period were $1,246.30 in 1929, and the lowest were $889.44 in 1933. Since 1933 the average annual earnings increased each year up to 1937 when they reached $1,121.63, but in 1938 they decreased to $1,052.00, a decrease of $69.63, or 6.2 per cent. Index numbers representing the average annual earnings (based on the average for 1925-1927=100) for certain of the years were: 102.2 in 1929 (the highest); 73.0 in 1932 (the lowest); 92.0 in 1937; and 86.3 (estimated) in 1938.

Cost of Living. In computing the index numbers representing the cost of living (presented in Table 1) the average of the index numbers for the three years, 1925 to 1927, has been taken as the base (100), whereas the Division on the Necessaries of Life, in computing the original series, has taken 1913 as the base year. During the first five years of the period of 14 years under review, the changes in the cost of living were relatively small, but during the four years, 1930 to 1933, inclusive, there were rather marked decreases, and in 1933 the lowest point (76.3) during the entire period was reached. Since 1933 there was an increase each year, reaching 88.2 in 1937, but in 1938 the index number fell to 86.5. These changes in the cost of living indicate the effects of the depression and recovery on the prices of commodities included in the wage-earners' budget.

Real Wages. The *real* value of the average annual earnings of those employed in each year has been computed by dividing the index number representing the average annual earnings of those employed by the corresponding index number representing the cost of living in that year. During the years, 1927 to 1931, the real value of the average annual earnings of *those employed*, was somewhat greater than during the three-year period, 1925-1927, taken as the base (100). In 1933, the index number fell to 95.7 (the lowest point reached during the entire period, 1925-1938) but in 1934 it increased to 96.7, remained the same in 1935, in 1936 increased to 103.2, in 1937 increased to 104.3 and in 1938 decreased to 99.8 (estimated).

Labor Bulletins

Labor Bulletin No. 178. Thirty-seventh Annual Directory of Labor Organizations in Massachusetts, 1938 (with Statistics of Membership, 1932-1937).—This directory contained, as in previous editions, the name, location, time and place of meeting, and the name and address of the secretary and business agent of each local labor organization having its headquarters in Massachusetts, together with a list of all the delegate organizations, such as state and district councils, central labor unions, etc., and the names and home office address with the name of the secretary of each national and international labor organization known to be in existence in the United States. The number of organizations listed in this directory was 1,952, of which number 173 were national and international organizations, 154 were delegate organizations, and 1,625 were local trade unions. The large gain in the number of local unions in 1937-1938 was largely due to the organization and chartering of unions comprising wage-earners not heretofore in any union.

The statistical data presented in the directory had reference to the number and membership of local unions which were in existence in Massachusetts at the close of each of the years 1932-1937. Earlier editions contained data for prior years. Membership statistics were first collected annually beginning with the year 1908. The tabulations do not include unions of letter carriers, post office clerks, or railway mail clerks. Excluding such organizations, there was at the close of 1937 a total of 1,423 local unions with a combined membership of 297,038, comprising 242,183 males and 54,855 females.

Labor Bulletin No. 179. Time Rates of Wages and Hours of Labor in Massachusetts, 1938.—This is the twenty-ninth of a series of annual reports of a similar nature, the first of which was issued by the former Bureau of Statistics in 1910. In the earlier reports of this series nearly all of the information was obtained from officials of labor organizations and had reference to rates paid as a result of agreements between employers and union employees. Numerous requests for other than strictly union rates resulted in additional information being obtained from employers such as street and electric railway companies, and from municipalities, in order that rates paid various classes of workmen and laborers might be more readily compared. Since 1924 the reports have been issued under the title "Time Rates", rather than "Union Rates", as formerly.

The report comprises three sections, the first devoted to union rates effective throughout the state in all types of organized industries and trades, the second section to municipal rates, and the third section to rates paid by several classes of public utility companies, many of whose employees are members of labor organizations and have definite agreements with their employers.

Monthly Surveys

Introductory.—The "monthly surveys of employment and earnings of wage-earners in Massachusetts" were first undertaken in September 1922, when reports were received from only 202 manufacturing establishments in which 120,804 wage-earners were employed. During the course of years these surveys have been greatly expanded so as to include, since 1931, all important fields of employment in this state. In December 1938 reports were received from 7,908 establishments in which 474,019 wage-earners were employed. It is believed that the reports received each month furnish truly representative samples, covering, as they do in most instances, approximately 55 per cent of the total number of wage-earners employed in all important industries and branches of business.

All schedules, except "central office" returns, covering branches of establishments whose headquarters are outside of Massachusetts, are obtained directly by the Division of Statistics. The Federal Bureau of Labor Statistics grants the use of the franking privilege in connection with the collection of reports

used jointly by the two agencies. There were no important changes in any questionnaires used during the year. Two employees who were assigned to Massachusetts continued to make the tabulations desired by the Federal Bureau.

Coverage of the Surveys.—In Table 2 data are presented, showing for each industrial group covered by the surveys the year and month in which the surveys were first undertaken and (as of December 1938) the number of establishments, number of wage-earners covered, the total amount paid them in wages in one week, and the approximate size of the sample, expressed in percentages of the total number of persons in the respective industrial groups according to the most recent census data available.

The estimated coverage for all groups is 55.0 per cent; for manufacturing, 60.0 per cent; and for wholesale and retail trade, 55.0 per cent. Public utility companies, which are few in number but cover a wide field of operations, have the largest relative showing,—95.0 per cent. The representation in the construction industry is only 35 per cent, but the 712 contractors who reported in December would in normal times employ possibly 80 per cent of the building tradesmen in the state. The municipalities from which reports are received include all of the 39 cities and nearly all of the large towns. The other classes of employment covered are not individually very important, but together they include more than 36,000 employees and are included in order that the surveys may fully represent all employment in the Commonwealth.

Table 2.—Coverage of Monthly Surveys of Employment and Earnings of Wage-Earners in Representative Establishments in Massachusetts in December, 1938: By Industrial Groups.

Industrial Groups	Survey First Undertaken		Number of Establishments Covered	Number of Wage-earners Covered	Total Amount of Wages Paid to Wage-earners Covered (one week)	Approximate Size of Sample (Percentage)[1]
	Month	Year				
Manufacturing	*Sept.*	*1922*	*1,782*	*269,936*	*$5,984,025*	*60.0*
Wholesale and Retail Trade	*Nov.*	*1929*	*4,247*	*96,396*	*$2,045,654*	*55.0*
Wholesale trade	Aug.	1931[2]	716	16,739	481,644	35.0
Retail trade	Aug.	1931[2]	3,531	79,657	1,564,010	60.0
Public Utilities	*Jan.*	*1929*	*117*	*45,700*	*$1,541,459*	*95.0*
Steam Railroads	Jan.	1929	6	20,405	670,549	100.0
Street and electric railways	Jan.	1929	8	9,595	358,559	95.0
Passenger bus companies	Apr.	1931	29	1,301	36,681	90.0
Gas and electric companies	Jan.	1929	74	14,399	475,670	95.0
Construction	*Apr.*	*1927*	*712*	*8,260*	*$242,282*	*35.0*
Building construction	Apr.	1927	672	7,192	209,485	25.0
Highway construction	June	1931[3]	29	648	17,445	90.0
Heavy construction	Jan.	1937[3]	11	420	15,352	25.0
Municipal Employment	*Apr.*	*1931*	*96*	*19,686*	*$517,186*	*70.0*
Agricultural Employment	*Sept.*	*1931*	*106*	*1,295*	*$25,580*	*10.0*
Office and Miscellaneous Employment	*Mar.*	*1931*	*868*	*36,467*	*$770,415*	*45.0*
Banks and trust companies	Mar.	1931	146	3,471	100,611	40.0
Clubs and associations	Mar.	1931	22	1,102	18,117	60.0
Dyers and cleansers	Mar.	1932	79	1,988	33,217	90.0
Express and transfer companies	Mar.	1931	26	751	21,422	60.0
General trucking and stevedoring	Mar.	1931	56	2,760	79,691	60.0
Hospitals	Mar.	1931	30	4,223	67,202	25.0
Hotel restaurants	Jan.	1932[3]	24[3]	1,994	28,295	75.0
Hotel service	Mar.	1931	62[3]	4,060	61,379	60.0
Insurance companies and agencies	Mar.	1931	72	3,968	107,982	30.0
Laundries	Mar.	1931	142	5,839	102,725	60.0
Quarrying and non-metallic mining	July	1937	13	448	11,630	50.0
Schools and colleges	Mar.	1931	22	1,883	41,632	50.0
Theatres	Mar.	1931	120	2,796	61,458	60.0
All other classes	Mar.	1931	54	1,184	35,054	20.0
Totals	–	–	*7,928*	*477,690*	*$11,126,601*	–
Less duplication[4]	–	–	20	3,671	123,008	–
All Industrial Groups Combined	–	–	*7,908*	*474,019*	*$11,003,593*	*55.0*

[1] Based on the average number employed as shown by census data.

[2] Group sub-divided beginning with returns for the date shown.

The highway group was further subdivided so as to differentiate between the usual highway construction and work done by heavy construction contractors which includes railroad projects and bridges, drainage, water-supply, and power development, marine work, etc.

[3] Of the 62 hotels reporting, 24 operated restaurants.

[4] The manufacture of gas by public utility companies is included under "Manufacturing" as well as under "Public Utilities—Gas and electric companies."

Manufacturing.—In 1938 the number of establishments from which reports were received each month was increased only slightly, but reports from a small number of establishments, which formerly did not report, were added to the list, in order to replace those for companies which had ceased to operate, or for other reasons were dropped from the list. An additional number of reports from establishments in several industries and cities were also secured, in order to maintain a true representation of all manufacturing establishments in the State.

This monthly survey has made it possible to determine, shortly after the close of each month, the trend of employment and pay rolls during that month in each of the principal manufacturing industries and cities in the state. The results of the survey are summarized in mimeographed press announcements, which are issued usually within 20 days after the close of the month to which they relate.

The announcements show, for 38 principal industries and 16 leading industrial cities, the number of establishments reporting for the pay-roll week including the 15th of the current and preceding month, the number of wage-earners employed, the amount of the weekly pay rolls, and the average weekly earnings of those employed. In addition to the text and detailed tables there is included in each issue a chart showing the trends of employment and total amount paid in wages in all manufacturing establishments combined. In December 1938 the number of establishments from which reports were received was 1,782, or about 20 per cent of the total number of establishments engaged in manufacturing in Massachusetts according to the annual census of manufactures, taken by the Department in 1937, and the number of wage-earners covered was 269,936, or about 60 per cent of the average number actually employed in all manufacturing establishments in the State.

Because of limited space, the results of the surveys are presented in this report in summary form only. The press announcements which are issued each month include the data in considerable detail. In this section of the report three series of index numbers are presented. One of these relates to employment of wage-earners, and the second to the amounts paid in wages in all manufacturing industries as a group, and in each of 20 leading industries in the State, by months, in 1938, with averages for each of the three years, 1938, 1937, and 1936. (See Table 3). The third series consists of corresponding index numbers for all manufacturing industries in each of 16 of the leading industrial cities. (See Table 4). The trends of employment and amounts paid in wages in the leading industries and cities are shown, graphically, by months, in a series of charts which appear in the appendix to this report.

Table 3.—Index Numbers of Employment and Amounts Paid in Wages in Manufacturing Establishments in Massachusetts, All Industries Combined and Twenty Leading Industries: By Months in 1938, and by Years, 1936, 1937 and 1938.

(Sources:—Annual Census of Manufactures in Massachusetts, 1925-1936, inclusive; Monthly Survey of Representative Manufacturing Establishments, 1937 and 1938)

Employment—Base, 100.0 = Average number employed in 1925, 1926 and 1927.
Amounts paid in wages—Base, 100.0 = Average of the amounts paid in wages in 1925, 1926 and 1927.

Industries	Average Number of Wage-earners[1]	Index Numbers: 1938, by Months												Annual Index Numbers		
		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	1938	1937	1936
							Employment									
All Industries Combined	**590,616**	**69.2**	**69.5**	**68.7**	**67.0**	**65.7**	**62.3**	**63.2**	**70.0**	**71.8**	**72.4**	**72.6**	**73.8**	**68.9**	**85.2**	**81.5**
Cotton goods	92,841	34.3	34.1	34.0	31.4	32.9	28.9	26.3	33.1	34.1	35.8	37.4	37.4	33.3	46.5	45.3
Boots and shoes	57,710	67.0	76.7	79.1	77.7	69.6	57.1	70.8	77.2	74.4	70.7	58.8	61.7	70.1	78.7	80.2
Woolen and worsted goods	53,526	63.5	60.3	52.3	52.0	56.1	56.8	71.9	80.7	78.5	76.4	85.2	91.7	68.8	88.2	90.5
Electrical machinery, apparatus, and supplies[2]	22,092	94.2	76.4	79.4	75.1	72.9	67.9	48.7	67.5	68.2	71.8	72.7	73.6	72.4	121.1	88.6
Foundry and machine-shop products	19,953	80.1	77.8	76.0	75.1	73.7	72.1	70.6	71.5	71.8	71.9	73.1	73.7	74.0	87.1	74.7
Dyeing and finishing textiles	13,823	76.8	80.6	78.3	77.6	74.4	70.2	57.2	71.4	73.4	74.1	78.2	77.9	74.2	88.6	86.4
Paper and wood pulp	12,829	73.9	78.1	76.3	73.8	75.0	73.6	70.5	71.9	73.9	73.4	76.9	76.5	74.5	81.2	79.9
Textile machinery and parts	12,773	72.9	69.5	65.9	59.7	59.5	57.7	57.7	57.7	60.8	60.4	62.9	65.2	62.5	91.9	73.9
Rubber footwear	12,081	42.7	42.2	40.7	41.6	40.4	40.8	41.8	44.1	49.8	52.0	50.6	50.1	44.7	54.2	52.5
Rubber goods, tires, and inner tubes	10,516	58.0	53.2	53.3	53.4	56.2	58.0	59.7	61.5	66.9	70.3	71.8	71.9	61.2	74.9	70.0
Leather tanned, curried, and finished	10,482	78.1	80.7	81.9	76.7	77.2	73.7	82.9	89.3	87.9	88.7	89.4	91.7	83.2	98.7	101.8
Hosiery and knit goods	10,100	69.0	71.3	65.4	66.5	59.9	60.2	64.0	71.4	73.1	74.1	72.4	70.3	68.1	92.7	96.6
Clothing, men's[3]	9,543	99.2	124.8	129.4	116.4	91.8	90.4	124.6	133.7	141.7	144.1	130.6	130.1	121.4	138.5	140.0
Printing, book and job	9,095	94.0	92.8	92.7	93.5	92.0	89.0	86.8	86.0	90.3	90.1	89.7	91.0	90.7	94.2	92.3
Bread and other bakery products	8,533	142.1	141.0	142.5	140.0	137.8	141.0	142.3	143.6	144.7	147.8	145.5	146.6	142.9	148.5	144.9
Confectionery	8,123	75.3	71.7	67.6	65.2	61.0	61.0	41.3	65.0	81.9	87.3	83.2	81.9	70.2	76.4	76.5
Furniture[4]	8,177	78.6	79.6	84.1	77.7	75.9	74.2	71.8	75.6	80.1	83.9	82.3	83.2	78.7	93.1	84.1
Boot and shoe cut stock and findings	7,520	88.3	93.7	98.6	94.5	91.7	84.7	110.1	101.2	99.8	94.0	88.5	92.9	94.8	101.8	102.4
Silk and rayon goods	6,804	126.9	136.3	143.1	134.6	129.1	89.1	97.1	112.3	116.4	117.3	123.8	117.7	120.3	202.5	180.9
Clothing, women's[5]	6,255	166.1	176.0	183.1	185.4	178.7	167.0	152.5	177.9	199.6	198.6	194.2	197.6	184.4	180.5	177.3
	Average Amounts Paid in Wages per Week[1]						Amounts Paid in Wages									
All Industries Combined	**$13,810,429**	**61.3**	**62.9**	**62.0**	**59.1**	**57.8**	**55.3**	**57.1**	**64.5**	**67.1**	**67.6**	**66.3**	**69.5**	**62.5**	**82.4**	**71.5**
Cotton goods	1,718,193	28.9	29.1	28.4	25.7	27.2	23.7	22.9	29.4	30.9	32.6	33.8	34.5	28.9	43.6	38.4
Boots and shoes	1,286,395	44.9	59.3	63.2	59.5	48.9	32.9	50.1	59.4	55.3	48.7	37.1	40.8	50.0	61.4	59.6
Woolen and worsted goods	1,182,160	53.7	50.3	40.4	39.9	43.2	53.8	61.8	70.4	65.9	64.3	72.5	81.1	58.1	83.0	75.0
Electrical machinery, apparatus, and supplies[2]	612,896	90.8	71.8	73.0	68.5	66.1	61.2	42.9	62.8	64.9	70.4	69.9	73.9	68.0	126.3	82.2
Foundry and machine-shop products	574,274	77.7	74.3	71.4	68.0	67.4	67.9	65.9	68.2	69.7	67.7	71.1	73.2	70.2	93.1	73.6
Dyeing and finishing textiles	308,794	67.4	76.4	76.2	71.3	65.8	61.9	54.7	69.6	76.1	72.5	75.5	73.5	70.1	85.3	80.4
Paper and wood pulp	318,337	64.4	71.4	70.5	65.5	67.0	64.4	61.1	63.7	68.6	73.9	70.2	73.2	67.8	80.0	70.6
Textile machinery and parts	324,741	60.6	56.7	52.8	47.9	47.4	43.6	47.4	52.1	53.1	53.3	61.9	66.2	53.6	105.2	74.3
Rubber footwear	271,755	37.9	38.8	38.2	35.4	37.8	42.9	44.8	46.5	53.3	56.7	54.9	54.8	45.2	55.8	48.9
Rubber goods, tires, and inner tubes	261,155	45.1	44.7	42.8	39.5	44.1	44.1	48.5	50.3	56.9	59.1	59.4	60.1	49.6	65.8	57.3
Leather tanned, curried, and finished	273,500	71.2	79.2	79.4	72.1	71.8	70.4	81.2	89.0	88.1	89.2	91.1	93.5	81.4	96.9	93.0
Hosiery and knit goods	182,627	56.0	61.2	58.5	56.7	50.9	51.5	60.1	70.0	73.0	69.2	68.3	65.0	61.7	82.0	85.9
Clothing, men's[3]	188,826	61.7	96.9	105.1	79.6	58.9	57.8	94.7	108.7	117.2	118.7	99.8	102.3	91.8	116.7	115.9
Printing, book and job	266,818	84.7	81.2	82.6	85.3	83.4	78.2	75.8	77.3	80.9	77.0	76.2	83.3	80.5	85.0	79.8
Bread and other bakery products	217,211	132.8	132.4	133.2	132.1	133.1	137.0	137.5	137.5	138.2	140.5	137.3	136.3	135.7	134.1	120.8
Confectionery	137,269	70.8	65.8	58.8	57.5	53.4	55.2	34.7	63.0	87.3	89.3	74.7	84.3	66.2	72.6	69.1
Furniture[4]	209,072	56.6	66.2	68.8	64.9	63.3	59.9	57.0	67.0	76.5	78.9	76.0	75.9	67.6	87.0	73.6
Boot and shoe cut stock and findings	164,927	70.5	81.6	87.1	75.0	72.7	65.0	84.1	84.9	84.2	74.9	65.9	77.6	76.7	83.6	86.1
Silk and rayon goods	139,885	87.7	93.1	100.8	101.0	95.5	67.0	74.7	84.5	92.6	93.8	92.9	94.4	89.8	165.0	140.4
Clothing, women's[5]	133,271	102.5	119.5	128.0	132.7	122.5	110.6	104.9	130.8	151.0	148.9	134.5	147.3	127.8	129.1	127.3

[1] The averages for the three years, 1925, 1926 and 1927 were taken as the base (100) in computing the index numbers presented in this table.
[2] Excluding radios.
[3] Includes men's, youths' and boys' clothing; work clothing; furnishing goods, shirts and nightwear; and suspenders.
[4] Including store and office fixtures.
[5] Includes corsets and allied garments.

All Manufacturing Industries, Combined. The index number representing employment of wage-earners at the lowest point of the depression was 51.7, in July 1932, since which month employment increased gradually but fairly steadily each month, except for occasional interruptions, which were due principally to seasonal factors, until April 1937, when the highest point (90.9) was reached. Except for a slight upward movement in July and August of that year, employment decreased each month until, in June 1938, the index number was only 62.3. Thereafter employment improved slowly but regularly each month, and the index number for December 1938 was 73.8, or slightly higher than in December 1937, when it was 71.0. The monthly trends of employment and amounts of wages paid are shown, graphically, for all industries combined, and for the 20 leading industries by charts, which appear on pages 88 to 94. The trends for the years 1937 and 1938 were very dissimilar. In 1937 the maximum employment in 15 of 20 leading industries occurred in one of the six months, March to September, and in 15 of the 20 industries, the minimum occurred in November or December. In 1938 the maximum employment in 18 of the 20 leading industries occurred in one of the first three or the last three months of the year, while the minimum in 15 of the 20 leading industries occurred in one of the three months, May, June and July.

Cotton Goods. The cotton goods industry during recent years has been seriously affected not only by the depression but by changes in the nature of products. Only a few of the important mills in Massachusetts now manufacture cotton goods exclusively. Nearly all of them produce mixtures of cotton and rayon or silk. A number of mills formerly considered in the cotton goods industry are now classified in the silk and rayon goods industry because such materials now constitute their predominant output. These changes in the industry are reflected in the index numbers representing employment and amount of wages paid in the cotton goods industry. In 1938 the highest index number representing employment was 37.4, in November and December, and the lowest was 26.3 in July. The average for the year 1938 was 33.3, as compared with 46.5 in 1937, and 45.3 in 1936.

Boots and Shoes. Possibly owing to the uncertainty resulting from impending tariff changes, the boot and shoe industry in Massachusetts had a rather unfavorable year in 1938. The two seasonal peaks of employment are represented by index numbers, 79.1 in March and 77.2 in August, and the low points were 57.1 in June and 58.8 in November. The average for the year was 70.1, as compared with 78.7 in 1937, and 80.2 in 1936.

Woolen and Worsted Goods. The decline in the manufacture of woolen and worsted goods late in 1937 continued into 1938, and the index number representing employment fell to 52.0 in April, but beginning in May and continuing through the remainder of the year, there were steady increases in employment from month to month (except September and October) and in December the index number (91.7) was reached. The average for the year 1938 was 68.8, as compared with 88.2 in 1937 and 90.5 in 1936.

Electrical Machinery, Apparatus, and Supplies. The index number representing employment in this industry for the year 1938 was 72.4, as compared with 121.1 in 1937 and 88.6 in 1936. In January, 1938 the index number was 94.2, the highest point during the year and the lowest was 48.7 in July. After July there was a continuous improvement from month to month, reaching 73.6 in December.

Foundry and Machine Shop Products. In this industry the trend of employment in 1938 was almost the reverse of the trend in 1937. Beginning in January, 1938 at 80.1 (the highest point during the year), the trend was continuously downward until it reached 70.6 (the lowest point) in July, then rose slowly until it reached 73.7 in December, whereas in 1937 the trend was upward during the first six months, and downward during the last six months of the year. The average for 1938 was 74.0, as compared with 87.1 in 1937 and 74.7 in 1936.

The five industries discussed above provide employment for about 40 per

cent of the total number of wage-earners employed in all manufacturing establishments in Massachusetts.

In four of the 20 leading industries the index numbers representing average number of wage-earners employed in 1938 exceeded 100. These four industries were: men's clothing, women's clothing, bread and other bakery products, and silk and rayon goods. In the manufacture of men's and women's clothing there were increases each year since 1932 in the number of establishments in operation, the number of wage-earners employed and amount paid in wages. In 1938 the index number representing employment in the manufacture of women's clothing was 181.4, as compared with 180.5 in 1937 and 177.3 in 1936. In the manufacture of men's clothing the index number representing employment in 1938 was 121.4, showing a decrease as compared with 138.5 in 1937 and 140.0 in 1936. The number of establishments engaged in the manufacture of bread and other bakery products remained fairly constant since 1932 but there were large increases each year, except 1938, in the number of wage-earners and amount paid in wages. The index number representing employment in this industry in 1938 was 142.9, showing a small decrease when compared with 148.5 in 1937 and 144.9 in 1936. Although there was a decrease since 1934 in the number of establishments engaged in the manufacture of silk and rayon goods, the number of wage-earners employed and the amount paid in wages steadily increased until 1938, and the index numbers representing employment increased from 83.0 in 1932 to 202.5 in 1937, but fell to 120.3 in 1938.

Index numbers representing the total amounts paid in wages to those employed in all manufacturing industries combined, and in each of 20 of the leading industries, are included in Table 3 with the index numbers of employment. The trend of the curve representing wage payments usually follows quite closely the trend of the curve representing employment, but during the period of depression the decreases in the amounts paid in wages were proportionally greater than the decreases in the number of wage-earners employed, due not only to reductions in the number of wage-earners employed but also to part-time employment and decreases in the basic rates of wages. On reference to the charts on pages 88 to 94 it will be observed that for all manufacturing industries combined and for all of the 20 leading industries, except foundry and machine shop products and textile machinery and parts, the curve representing amounts of wages paid was continuously below that representing employment during each of the years 1932 to 1936, inclusive, and in 1937 this was also true of eleven of the 20 leading industries. In 1938 the curve representing amount paid in wages reached somewhat higher points in one or more months of the year than the curve representing employment for five industries, as follows: dyeing and finishing textiles (September); paper and wood pulp (October); textile machinery and parts (December); rubber footwear (June to December, inclusive); leather, tanned, curried and finished (September to December, inclusive); and confectionery (September, October and December).

Table 4.—Index Numbers of Employment and Amounts Paid in Wages in Manufacturing Establishments in Sixteen Leading Industrial Cities in Massachusetts: By Months in 1938 and by Years, 1936, 1937, and 1938.

(Sources:—Annual Census of Manufactures in Massachusetts, 1925–1936 inclusive; Monthly Survey of Representative Manufacturing Establishments, 1937 and 1938)

Cities	Average Number of Wage-Earners[1]	Index Numbers, 1938, by Months												Annual Index Numbers		
		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	1938	1937	1936
		Employment														
Boston	78,364	62.9	66.0	67.4	67.6	62.8	61.1	59.6	65.8	69.6	71.3	71.1	70.9	66.3	78.3	75.8
Brockton	12,682	59.1	67.1	68.5	64.6	47.4	48.5	67.7	70.9	65.9	69.3	58.0	62.1	62.4	67.2	73.9
Cambridge	21,859	73.0	74.0	74.1	73.4	72.6	70.1	70.8	74.2	78.2	77.9	75.5	77.3	74.3	82.6	79.4
Chicopee	10,171	61.0	58.2	57.2	50.1	50.2	50.6	54.2	56.0	57.3	57.6	56.5	58.7	55.6	76.6	75.1
Fall River	31,146	59.9	64.1	65.3	62.7	69.1	67.4	70.4	73.1	75.2	79.6	81.0	82.3	70.0	72.0	69.3
Fitchburg	8,411	82.1	80.8	79.3	77.3	77.8	78.6	78.7	80.1	82.1	81.4	79.8	81.1	79.9	95.2	86.4
Haverhill	11,080	62.5	69.1	69.2	64.8	63.9	50.5	64.3	70.5	67.8	62.1	58.3	61.0	63.7	73.2	67.8
Holyoke	16,499	54.9	55.8	54.9	51.3	49.2	38.5	40.8	44.8	43.3	42.4	43.3	42.2	46.8	73.8	64.3
Lawrence	25,983	68.6	63.3	56.9	63.3	65.4	65.3	72.8	81.4	80.6	78.7	90.9	98.7	73.8	98.2	101.6
Lowell	20,405	63.1	63.0	62.1	61.3	63.1	58.4	54.8	66.4	69.0	69.9	66.1	65.8	63.6	80.7	77.6
Lynn	20,551	68.7	70.6	70.5	66.1	61.7	53.9	56.2	59.6	59.3	59.2	55.0	53.8	61.2	78.5	66.4
New Bedford	35,308	52.2	49.8	49.9	47.2	45.9	42.3	37.2	38.7	42.1	42.9	44.9	43.9	44.8	77.0	73.1
Peabody	6,085	71.5	71.3	71.1	69.6	70.0	63.0	56.0	77.0	75.7	79.7	81.4	79.6	72.2	87.1	96.9
Pittsfield	9,045	83.0	78.1	70.8	63.4	64.9	64.4	27.5	68.1	66.9	64.5	68.6	69.3	65.8	105.3	78.0
Springfield	17,989	87.8	71.6	79.6	79.2	76.1	68.8	67.7	68.9	67.6	68.6	69.9	73.3	73.3	100.9	93.5
Worcester	31,047	77.5	76.4	75.2	73.6	71.4	70.1	67.9	70.9	74.6	73.8	73.0	73.9	73.2	107.3	96.0
	Average Amounts Paid in Wages per Week[1]	**Amounts Paid in Wages Weekly**														
Boston	$2,039,987	53.6	58.1	60.0	59.3	54.9	52.1	53.3	58.7	63.6	64.0	61.6	63.8	58.6	71.5	65.5
Brockton	294,147	47.8	57.7	56.0	45.8	34.3	35.7	55.5	60.8	53.0	55.8	42.4	47.1	49.3	57.0	60.5
Cambridge	527,490	68.9	70.3	69.2	67.8	68.2	65.3	66.1	70.8	75.4	73.6	69.3	74.4	69.9	79.0	69.6
Chicopee	252,173	63.0	61.7	59.0	49.4	54.3	53.1	58.6	60.8	64.8	66.5	69.1	75.5	61.3	77.6	68.6
Fall River	558,883	45.9	48.6	52.4	50.9	55.5	53.9	59.5	63.5	65.7	68.2	68.2	73.3	58.8	64.3	59.1
Fitchburg	196,173	66.3	69.9	67.2	63.3	63.8	62.5	66.0	69.5	74.4	75.5	70.7	75.1	68.7	89.5	70.6
Haverhill	258,751	43.4	51.4	56.2	49.1	46.9	27.6	43.2	53.8	49.2	41.0	37.0	39.5	44.9	53.9	49.7
Holyoke	359,585	49.9	52.5	50.8	47.2	45.1	37.9	38.3	40.9	42.9	43.2	43.5	44.2	44.7	71.9	58.4
Lawrence	583,913	58.5	53.3	48.0	49.9	48.8	50.9	59.0	70.4	65.3	66.3	77.5	86.1	61.2	89.3	82.7
Lowell	390,446	54.9	54.4	53.7	53.4	53.0	49.3	49.3	59.6	61.4	61.7	55.3	58.3	55.4	75.8	69.3
Lynn	542,184	58.5	63.7	61.8	57.7	52.9	47.2	50.3	53.8	54.4	54.8	51.4	55.4	55.2	77.2	58.3
New Bedford	698,356	41.9	39.7	40.1	39.2	37.4	32.9	31.0	33.3	36.9	39.1	40.0	39.9	37.6	68.3	59.9
Peabody	150,550	73.0	72.9	73.7	73.2	73.1	65.6	62.8	81.4	81.4	86.0	87.4	89.2	76.6	91.9	90.0
Pittsfield	236,799	78.4	71.9	66.0	57.9	58.3	55.8	19.2	58.2	57.5	55.0	55.7	59.7	57.8	101.1	68.8
Springfield	457,322	82.6	63.4	70.6	67.0	67.9	61.0	60.7	63.3	62.5	65.2	65.9	68.7	66.6	100.4	89.4
Worcester	819,296	78.7	76.8	74.9	72.6	70.1	67.1	67.1	71.9	77.9	75.5	76.4	79.4	74.0	113.7	87.2

[1] The averages for the three years, 1925, 1926 and 1927 were taken as the base (100) in computing the index numbers presented in this table.

In Table 4 index numbers representing the number of wage-earners employed and the amounts paid in wages in the manufacturing industries are presented for 16 leading industrial cities for each of the years 1936, 1937 and 1938 and by months in 1938. In each of these cities the average number of wage-earners employed and the average amount paid in wages were less in 1938 than in 1937. The index numbers representing the average number of wage-earners employed in 1938 in these 16 leading cities, arranged in order from the highest to the lowest were: Fitchburg, 79.9; Cambridge, 74.3; Lawrence, 73.8; Springfield, 73.3; Worcester, 73.2; Peabody, 72.2; Fall River, 70.0; Boston, 66.3; Pittsfield, 65.8; Haverhill, 63.7; Lowell, 63.6; Brockton, 62.4; Lynn, 61.2; Chicopee, 55.6; Holyoke, 46.8; and New Bedford, 44.8. The months in which the maximum employment occurred in 1938 in these cities were: January, in six cities; February, August, October and December, in two cities each; and September and November, in one city each.

The index numbers representing the amounts paid in wages in 1938 in the 16 leading cities, arranged in order from the highest to the lowest were: Peabody, 76.6; Worcester, 74.0; Cambridge, 69.9; Fitchburg, 68.7; Springfield, 66.6; Chicopee, 61.3; Lawrence, 61.2; Fall River, 58.8; Boston, 58.6; Pittsfield, 57.8; Lowell, 55.4; Lynn, 55.2; Brockton, 49.3; Haverhill, 44.9; Holyoke, 44.7 and New Bedford, 37.6. The months in which the maximum amounts were paid in wages in these cities were: December in five cities; January and October in three cities each; February in two cities; and March, August and September in one city each.

Earnings of employees are affected by the continuity of their employment, by part-time employment, and by change in wage rates. There are presented in Table 5 the average weekly earnings of wage-earners employed in all manufacturing industries combined, in each of 20 leading industries, and in 16 leading manufacturing cities in Massachusetts for each of the months in 1938, with averages for the years 1938, 1937 and 1936. The averages for 1936 were derived from the annual census of manufactures and those for 1937 and 1938 were as reported by representative employers in connection with the monthly surveys.

In 1938 the average weekly earnings were lower than in 1937 in all of the twenty leading industries, except hosiery and knit goods, bread and other bakery products, and boot and shoe cut stock and findings, and in all of the sixteen leading cities, except Peabody, and in these cases, the increases were relatively small. The average weekly earnings were highest in those industries in which a large proportion of the employees were males engaged in skilled or semi-skilled occupations, namely: book and job printing, $27.31; electrical machinery, apparatus and supplies, $27.07; foundry and machine-shop products, $26.44; and leather, tanning, currying and finishing, $25.81. The cities in which the average weekly earnings were highest were: Pittsfield, $26.42; Peabody, $25.24; and Springfield, $25.14.

Marked fluctuations from month to month in the average weekly earnings occurred in 1938. The highest averages were reported in December in seven of the 20 principal industries; in September in seven industries; in March and June in two industries, each; and in April and October in one industry, each. The lowest averages were reported in January in eight industries; in April in four industries; in July in three industries; in June in two industries; and in February, November and December in one industry, each. The highest averages in the 16 cities were reported in December in six cities; in October in three cities; in March, July and September in two cities each; and in February in one city.

Wholesale and Retail Trade. The monthly collection of pay roll data from wholesale and retail trade establishments was first undertaken in November 1929. In December, 1938, reports were received covering 716 wholesale establishments employing 16,739 persons, and 3,531 retail establishments employing 79,657 persons, or a total of 4,247 establishments and 96,396 persons. The decreased coverage when compared with the December 1937 returns was largely due to reorganization of certain wholesale and retail "chains" which resulted in fewer units and reduced personnel, changes in methods of mer-

Table 5—Average Weekly Earnings of Wage-earners in Manufacturing Establishments in Massachusetts, All Industries Combined, Twenty Leading Industries and Sixteen Leading Industrial Cities; by Months in 1938, and by Years 1938, 1937, and 1936.

(Base:—Average Weekly Earnings of Wage-earners Employed during Three-year Period 1925–1926–1927).

Principal Industries[1] and Cities	Average Weekly Earnings 1925–1927	Average Weekly Earnings in 1938, by Months												Average Weekly Earnings (Annual Averages)		
		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	1938	1937	1936
All Industries Combined	**$23.29**	**$20.90**	**$21.35**	**$21.27**	**$20.81**	**$20.76**	**$20.94**	**$21.30**	**$21.73**	**$22.02**	**$21.99**	**$21.51**	**$22.17**	**$21.40**	**$22.76**	**$20.50**
Cotton goods	18.52	15.17	15.37	15.04	14.74	14.88	14.81	15.70	16.14	16.31	16.38	16.27	16.62	15.62	17.18	15.69
Boots and shoes	22.29	15.86	18.26	18.91	18.13	16.63	13.66	16.70	18.13	17.52	16.24	14.86	15.58	16.71	17.74	16.56
Woolen and worsted goods	22.08	19.36	19.11	17.69	17.57	17.63	21.70	19.71	20.01	19.25	19.31	19.53	20.30	19.26	20.42	18.30
Electrical machinery, apparatus, and supplies	27.74	27.68	27.11	26.55	26.36	26.18	26.03	25.45	26.88	27.51	28.34	27.78	29.00	27.07	29.83	25.75
Foundry and machine-shop products	28.78	27.11	26.66	26.22	25.25	25.47	26.20	25.98	26.54	27.02	26.18	27.00	27.59	26.44	29.74	28.35
Dyeing and finishing textiles	22.34	20.81	22.50	23.10	21.81	20.98	20.90	22.65	23.08	24.58	23.20	22.90	22.38	22.41	22.89	20.78
Paper and wood pulp	24.39	21.22	22.79	23.03	22.10	22.24	21.80	21.60	22.07	23.11	25.07	22.73	23.83	22.63	24.51	21.93
Textile machinery and parts	25.45	21.08	20.67	20.33	20.36	20.23	19.35	21.03	23.11	22.35	22.58	25.19	26.01	21.86	29.45	25.56
Rubber footwear	22.54	20.07	20.93	21.35	19.37	21.33	23.96	24.44	24.07	24.43	24.89	24.75	24.96	22.88	23.87	20.93
Rubber goods, tires, and tubes	24.84	21.04	22.71	21.71	21.52	22.83	22.12	23.64	23.79	24.76	24.45	24.07	24.32	23.08	23.44	20.33
Leather tanned, curried, and finished	26.10	24.38	26.10	25.77	24.98	24.52	25.18	25.80	26.27	26.41	26.51	26.87	26.88	25.81	26.17	23.84
Hosiery and knit goods	18.10	15.30	16.19	16.88	16.03	15.97	16.08	17.66	18.43	18.78	17.57	17.72	17.38	17.00	16.92	16.08
Clothing, men's	19.79	14.18	17.71	18.54	15.41	14.46	14.41	17.17	18.36	18.68	18.59	17.26	17.75	16.88	17.25	16.38
Printing, book and job	29.34	27.76	26.95	27.44	28.11	27.89	27.05	26.86	27.65	27.57	26.32	26.07	28.09	27.31	27.56	25.34
Bread and other bakery products	25.46	24.05	24.17	24.04	24.18	24.77	24.91	24.78	24.70	24.65	24.52	24.34	23.97	24.42	23.15	21.22
Confectionery	16.90	16.96	16.56	15.68	15.89	15.78	16.33	15.18	17.50	19.26	18.47	16.20	18.58	16.87	16.96	15.26
Furniture	25.75	17.05	19.72	20.10	19.80	19.76	19.10	18.80	20.97	22.61	22.29	21.89	21.62	20.31	22.09	21.96
Boot and shoe cut stock and findings	21.94	18.78	20.02	20.32	18.26	18.24	17.65	16.94	19.29	19.39	18.32	17.10	19.13	18.62	18.54	18.45
Silk and rayon goods	20.59	15.36	15.19	15.67	16.69	16.46	16.73	17.10	16.73	17.68	17.77	16.68	17.83	16.66	18.04	15.95
Clothing, women's	21.65	12.66	14.12	14.55	14.89	14.26	13.77	14.31	15.30	15.74	15.60	14.41	15.51	14.59	14.73	16.48
Boston	$26.03	$22.65	$23.47	$23.73	$23.37	$23.33	$22.77	$23.87	$23.80	$24.39	$23.98	$23.13	$23.99	$23.54	$23.73	$22.49
Brockton	23.19	19.47	20.62	19.60	17.02	17.35	17.64	19.64	20.55	19.29	19.32	17.54	18.18	18.85	20.17	18.99
Cambridge	24.13	23.96	24.11	23.69	23.41	23.81	23.64	23.69	24.21	24.48	23.97	23.28	24.40	23.89	24.34	21.16
Chicopee	24.79	22.79	23.18	22.57	21.58	23.64	22.93	23.64	23.72	24.68	25.20	26.73	28.08	24.06	24.46	22.64
Fall River	17.94	14.00	13.84	14.65	14.84	14.69	14.64	15.47	15.90	15.99	15.70	15.42	16.30	15.12	16.25	15.31
Fitchburg	23.32	19.18	20.55	20.12	19.45	19.37	18.79	19.81	20.47	21.38	21.87	20.90	21.85	20.31	22.31	19.06
Haverhill	23.35	17.28	18.29	19.98	18.67	18.18	13.54	16.64	18.89	17.97	16.34	15.73	16.05	17.30	18.09	17.10
Holyoke	21.79	19.49	20.16	19.82	19.72	19.61	21.04	20.07	19.52	21.18	21.77	21.48	22.37	20.52	20.80	19.81
Lawrence	22.47	19.01	18.77	18.82	17.60	16.65	17.40	18.10	19.32	18.10	18.82	19.05	19.48	18.43	20.05	18.29
Lowell	19.13	16.90	16.72	17.13	17.24	16.62	16.67	17.74	17.70	17.53	17.41	16.49	17.46	17.13	19.74	17.08
Lynn	26.38	23.12	24.22	23.68	23.50	23.05	23.54	24.06	24.24	24.66	24.91	25.16	27.67	24.32	26.63	23.15
New Bedford	19.78	16.13	16.03	16.05	16.57	16.25	15.53	16.67	17.23	17.54	18.23	17.83	18.21	16.86	19.14	16.21
Peabody	24.74	24.47	24.53	24.87	25.21	24.73	24.63	26.53	25.02	25.45	25.54	25.42	26.52	25.24	25.21	22.99
Pittsfield	26.18	28.43	28.14	28.53	27.77	27.31	26.36	21.25	26.02	26.20	25.99	24.77	26.26	26.42	31.18	23.10
Springfield	25.42	26.19	24.63	24.48	23.37	24.63	24.49	24.80	25.39	25.54	26.24	26.00	25.86	25.14	27.61	24.31
Worcester	26.39	24.40	24.15	23.93	23.70	23.60	23.01	23.76	24.40	25.12	24.60	25.15	25.83	24.30	28.98	23.96

[1] The industries are arranged in the order of the average number of employees in 1925, 1926 and 1927.

chandising, distribution, etc. The returns for wholesale trade represent about 35 per cent of the total number actually employed in all such establishments in Massachusetts, and in the retail trade the representation is about 60 per cent.

The results of the monthly surveys are published in mimeographed form. These summaries are sent to each organization reporting, and show the number of reports received, the number of stores or outlets covered, the number of persons employed, and the amount paid in salaries or wages to employees. Data are shown separately for wholesale trade, for each of seven wholesale groups (and a miscellaneous group), for retail trade, and for eleven retail groups, including a miscellaneous group. For department and dry goods stores, grocery and food stores, and lunch-rooms and restaurants the data are presented separately for "chain stores" and "independently owned stores." Summary data are also presented for 19 cities which are important trading centers, but the information so presented is not fully representative, because "chain" organizations do not furnish reports for local units, by municipalities.

The returns in full detail are not included in this report but in Table 6 there are presented two series of index numbers showing trends of employment and amounts paid in wages for the principal trade groups, by months in 1938, with averages for each of the years 1938, 1937, and 1936. Because of the changes which occur in the list of reporting establishments, the index numbers have been computed by the "link-relative" method. The data for Massachusetts published in report of the "Census of Distribution, 1929" taken by the United States Bureau of the Census, were used as bases in computing the index numbers.

Index numbers of employment and amounts paid in wages are presented in Table 6. The employment index number for 1938 in wholesale trade, all groups combined, was 71.1 as compared with 73.0 in 1937, and 71.9 in 1936, showing no large changes during the past three years. In retail trade employment in 1938 continued much below normal. The employment index number in 1938 was 80.0, which was somewhat less than the numbers (84.1) in 1937, and (82.7) in 1936. Retail trade showed the usual seasonal trends with relatively high points in April (83.0) due to the Easter trade, and in December (95.6) due to the holiday trade, and these seasonal trends were particularly true of department and dry goods, and wearing apparel stores. The distributors of fuel (during the fall and winter months) and of ice (during the summer) were two other groups showing definite seasonal trends in employment. In general, the changes in the amounts of wages paid followed quite closely, the changes in the numbers of persons employed, except that when the regular forces were supplemented by temporary salespeople, the increases in total wages paid were not as large, proportionately, as the increases in employment. The number of hours worked by employees engaged in the distribution of fuel and ice varied according to the seasonal demand for these commodities.

Construction.—The collection of monthly pay roll data from building contractors was first undertaken in April 1927. The questionnaire calls for the following information relative to the week including or ending nearest the 15th of the month: number of building tradesmen employed, amount paid in wages, and total number of man-hours worked. These pay roll data are furnished for individual projects or groups of projects within a single city or town, and designated as both "Private," "WPA," etc. Contractors state whether they are general or sub-contractors, and, if the latter, the type of contracting done, and whether they also do highway and heavy construction work. The returns are tabulated on the basis of the type of work performed, and three separate summaries of data are made under the headings "Building Construction," "Highway Construction," and "Heavy Construction." Certain of the larger contractors occasionally do all three classes of work.

The building construction returns are tabulated in considerable detail so as to show information separately for seven groups of contractors. This is virtually a tabulation by occupations, and shows quite definitely the seasonal trends by types of work performed. The seven contracting groups are as follows:

Table 6.—Index Numbers of Employment and Amounts Paid in Wages in Wholesale and Retail Trade Establishments in Massachusetts: by Months in 1938, and by Years, 1936, 1937 and 1938.

(Source:—Monthly Survey of Representative Establishments in Wholesale and Retail Trade)

Trade Groups	Average Number of Wage-Earners in 1929[1]	Index Numbers, 1938, by Months												Annual Index Numbers		
		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	1938	1937	1936
		Employment														
Wholesale and Retail Trade—All Groups Combined	**282,768**	**77.9**	**76.3**	**75.7**	**79.8**	**77.0**	**75.6**	**73.9**	**72.9**	**75.0**	**76.1**	**77.6**	**89.3**	**77.3**	**81.1**	**79.7**
Wholesale Trade	**72,929**	**72.0**	**70.8**	**70.2**	**70.8**	**70.3**	**70.4**	**71.0**	**71.5**	**71.4**	**71.4**	**71.9**	**72.0**	**71.1**	**73.0**	**71.9**
Automobiles, accessories, gas, and oil	8,019	74.5	85.1	82.5	81.2	78.7	77.4	76.3	76.0	77.3	78.6	81.4	82.7	80.1	83.9	82.7
Groceries and food	20,767	70.8	68.6	68.6	70.1	69.6	69.5	71.4	72.3	71.5	71.1	71.2	70.3	70.4	71.0	71.3
Retail Trade	**209,839**	**80.3**	**78.5**	**77.9**	**83.0**	**79.5**	**78.3**	**76.0**	**74.5**	**77.3**	**78.7**	**80.5**	**95.6**	**80.0**	**84.1**	**82.7**
Automobiles, accessories, gas, and oil	23,226	68.6	66.6	66.5	66.1	65.6	63.6	62.8	61.8	62.6	62.8	62.4	63.3	64.4	74.0	80.7
Department and dry goods stores	44,247	68.8	67.6	67.1	77.9	71.4	69.5	66.8	61.1	66.4	66.9	69.2	100.3	71.1	74.1	71.8
Drug stores	6,609	97.3	95.3	95.4	95.8	95.9	95.9	97.7	95.7	95.2	94.7	95.7	97.3	96.0	96.2	86.4
Fuel and ice	9,031	107.0	97.6	93.3	83.2	80.0	82.5	83.6	85.3	87.5	90.3	90.8	95.4	89.7	91.0	90.5
Furniture and radios	10,164	80.9	78.5	79.6	78.2	75.6	73.9	67.8	68.1	70.6	72.2	73.6	75.1	74.5	83.4	79.0
Groceries and food	42,194	99.7	99.4	99.1	100.0	98.7	98.6	98.1	98.7	95.1	95.6	98.0	100.4	98.5	105.7	106.0
Lunchrooms and restaurants	23,078	109.3	108.4	106.0	105.8	107.9	107.7	104.1	102.1	105.2	108.0	109.1	108.1	106.8	110.8	106.4
Wearing apparel and accessories	21,063	68.2	64.5	63.9	76.2	71.2	67.4	60.1	57.6	65.6	71.4	72.9	81.0	68.3	72.7	71.1
	Average Amounts Paid in Wages in 1929[1]	**Amounts Paid in Wages Weekly**														
Wholesale and Retail Trade—All Groups Combined	**$7,423,203**	**69.9**	**67.2**	**67.3**	**68.9**	**67.9**	**67.5**	**66.8**	**66.1**	**68.0**	**68.2**	**69.4**	**76.1**	**68.6**	**71.4**	**67.2**
Wholesale Trade	**2,799,260**	**69.2**	**66.3**	**67.0**	**67.1**	**66.9**	**66.8**	**67.9**	**68.4**	**68.2**	**67.4**	**68.0**	**67.9**	**67.6**	**69.4**	**63.8**
Automobiles, accessories, gas, and oil	294,418	69.2	66.8	67.0	66.1	66.2	63.9	63.6	63.7	65.5	65.8	68.1	69.5	66.3	72.4	66.1
Groceries and food	758,016	67.3	66.4	68.3	68.7	68.8	68.6	71.5	72.7	71.1	70.0	69.9	68.2	69.3	65.5	61.0
Retail Trade	**4,623,943**	**73.5**	**70.7**	**70.6**	**72.9**	**71.5**	**70.9**	**69.4**	**68.3**	**71.1**	**71.6**	**73.1**	**82.7**	**72.2**	**75.2**	**71.2**
Automobiles, accessories, gas, and oil	651,694	60.3	57.9	59.4	59.7	59.9	56.2	56.1	54.6	56.5	56.2	56.3	58.4	57.6	64.8	64.8
Department and dry goods stores	788,076	67.2	64.6	65.1	71.2	68.6	68.7	66.5	64.6	69.2	69.0	72.0	96.5	70.3	70.9	67.0
Drug stores	154,115	83.1	78.9	79.7	80.2	79.8	79.3	81.7	82.5	81.8	81.5	81.8	86.7	81.4	82.5	74.7
Fuel and ice	259,316	101.3	89.9	84.1	70.3	69.6	71.7	73.6	72.5	82.6	76.3	76.7	83.9	79.4	79.4	75.2
Furniture and radios	301,230	69.9	68.2	71.7	68.8	68.0	66.4	59.5	60.3	61.8	63.0	64.3	64.8	65.6	73.9	63.8
Groceries and food	819,291	93.6	92.1	91.4	93.2	91.9	92.2	92.9	92.3	90.5	91.7	92.6	93.5	92.3	98.1	97.0
Lunchrooms and restaurants	393,810	102.2	100.9	99.5	100.1	101.2	101.2	96.3	95.1	99.7	101.4	101.7	102.6	100.2	102.2	94.1
Wearing apparel and accessories	466,471	67.8	63.5	62.7	71.5	69.1	66.3	59.8	58.2	64.7	69.4	70.9	76.1	66.7	70.5	66.0

[1] The average in each case was taken as a base in computing the index numbers presented in this table.

carpenter; electrical; general; mason and plastering; painting; plumbing, heating and ventilating; roofing and sheet metal; and "all other classes." The data are also presented separately for the leading cities and towns.

Reports were received each month in 1938 from about 675 contractors in building construction who employed 6,831 workmen on private work during the reporting week in September, the largest number reported as employed in any month prior to the hurricane and floods which occurred in September. Many additional building tradesmen were employed on emergency building and repairs and the number employed by the same contractors during the reporting week in October increased to 8,172. Nearly all of the important general contractors, and sub-contractors are included in the monthly survey.

The Department has received reports regularly from about 120 contractors in Massachusetts who do highway and heavy construction[1] work. The maximum number of workmen employed on private work prior to the hurricane and floods in September was 819 in July, and for federal and federal-aided work the maximum number employed was 791 in September. During the last three months of the year the average number employed on private work was 1,239 and on federal and federal-aided work it was 1,708. The following tabulation shows the number of workmen employed on each of three classes of private and federal construction work during the reporting week in each of the three months prior to and the three months following the hurricane and floods which occurred in September, 1938.

Table 7.—Effect of Hurricane and Flood Repair Work on Employment of Construction Workmen in Massachusetts.

Months in 1938	Number of Workmen Employed			
	Building Construction	Highway Construction	Heavy Construction[1]	Three Classes Combined
July	7,066	839	701	8,606
August	7,473	642	508	8,623
September	7,514	768	628	8,910
Average	*7,351*	*750*	*612*	*8,713*
October	9,195	1,417	555	11,167
November	8,984	1,780	1,583	12,347
December	8,885	1,490	2,016	12,391
Average	*9,021*	*1,562*	*1,385*	*11,968*
Average additional workmen	*1,670*	*812*	*773*	*3,255*

[1] Heavy construction includes railroad projects and bridge, drainage, sanitation, flood-control and water supply projects, water-power development, breakwaters, docks, marine work, etc.

Since the depression increasingly large numbers of building tradesmen have been working "on their own," because there was not sufficient work for contractors to insure fairly steady employment, and many others have sought other kinds of employment. During recent years nearly all new residential buildings erected, have been one-family houses. The monthly survey of building construction is based solely on reports from contractors, and consequently does not include those building tradesmen who are self-employed or who are employed by "development" companies who employ building tradesmen as individuals or in pairs and pay them a sum agreed upon, "for the job." Such workmen usually are not contractors, maintain no regular office or shop, and hire no one except an occasional helper or two.

In Table 8 six series of index numbers are presented, three of which are based on information furnished by the employers, namely: number of tradesmen employed; amounts paid in wages; and number of man-hours worked. The other three series, computed from the original data, are: average weekly hours per man; average weekly earnings per man; and average hourly earnings per man.

The index numbers representing employment, amounts paid in wages, and man-hours worked were somewhat lower in 1938 than in 1937. As a direct result of the hurricane and floods in September, all three of these factors were at a much higher level during the last three months in the year than earlier, although August and September numbers were higher than those for prior months. There was some decrease in the average weekly hours worked in 1938 over 1937, but due to increased hourly earnings, the average weekly earnings were only slightly less.

Table 8.—Index Numbers of Employment and Earnings of Building Tradesmen in Massachusetts: By Years 1929-1938, Inclusive, and by Months in 1938.

(Source:—Monthly Survey of Building Construction)

Years and Months	Index Numbers (Base Average for 1928 = 100.0) [1]					
	Number of Tradesmen	Amount Paid in Wages	Number of Man-hours	Average Weekly Hours per Man	Average Weekly Earnings per Man	Average Hourly Earnings per Man
1928 (Base)	*100.0*	*100.0*	*100.0*	*100.0*	*100.0*	*100.0*
1929	103.0	105.3	102.4	98.7	101.3	102.6
1930	94.6	97.2	92.7	97.9	102.8	105.0
1931	66.8	62.0	59.5	88.9	91.5	102.8
1932	41.2	29.2	32.1	77.8	70.4	90.6
1933	27.9	16.6	21.0	74.8	59.3	79.4
1934	31.4	19.9	25.0	79.5	63.4	79.8
1935	35.1	22.8	28.6	80.6	64.4	80.1
1936	36.4	25.2	31.2	85.5	68.5	79.9
1937	44.3	33.3	37.7	85.4	75.0	87.5
1938	37.2	27.1	29.7	79.7	73.5	92.1
1938						
January	30.3	20.1	21.6	71.8	66.6	92.6
February	27.1	19.5	20.6	76.5	72.4	94.3
March	27.3	19.4	20.7	76.7	71.7	93.4
April	33.6	23.9	26.3	79.2	71.8	90.5
May	35.2	25.8	28.6	82.0	74.1	90.1
June	36.9	26.8	29.9	81.8	73.5	90.6
July	38.4	28.7	31.5	82.8	75.7	92.2
August	40.3	29.7	32.3	81.1	74.6	93.1
September	40.6	31.0	33.3	83.1	77.5	94.4
October	48.6	37.8	42.3	88.2	79.0	90.6
November	45.5	32.1	35.7	79.4	71.6	91.1
December	42.8	30.9	33.8	73.4	73.4	92.7

[1] This survey was first undertaken in April, 1927.

In September 8,910 workmen were employed on all classes of projects combined, in October the number increased to 11,167, and there were further increases to 12,347 in November and 12,391 in December. In building construction there was an immediate demand for workmen of all types. Highway and heavy construction projects required planning and approval before being undertaken. The largest numbers were employed on highway work in November (1,780) and on heavy construction in December (2,016). The records indicate that without this emergency work during the last three months of the year, the totals for 1938 would have been relatively small, because the amount of work available in 1938 prior to October was much less than during the corresponding periods for several years past.

Public Utilities: The monthly survey of public utility companies was first undertaken in January, 1929 and now covers approximately 95 per cent of all persons employed by such companies in Massachusetts. There have been very few changes of reporting companies and such changes have been due almost wholly to mergers or consolidations resulting in a small decrease in the number of employees covered by the reports. In December, 1938 reports were received from 117 companies employing 45,700 wage earners. The list included six steam railroads, eight street and electric railway companies, 29 passenger bus companies (several of which previously operated street cars), and 74 gas and electric companies. Three of the six railroad companies are engaged in interstate commerce, but each furnishes pay roll data covering its operations solely within Massachusetts.

Table 9.—Index Numbers of Employment and Amounts Paid in Wages by Public Utility Companies in Massachusetts: By Years, 1930-1938, Inclusive, and by Months in 1938.

(Source:—Monthly Survey of Public Utility Companies)

Years and Months	Index Numbers (Base:—Average for 1930 = 100.0)									
	All Classes Combined		Steam Railroads		Street and Electric Railways		Passenger Bus Companies [1]		Gas and Electric Companies	
	Employment	Amounts Paid in Wages	Employment	Amounts Paid in Wages	Employment	Amounts Paid in Wages	Employment	Amounts Paid in Wages	Employment	Amounts Paid in Wages
1930 (Base)	*100.0*	*100.0*	*100.0*	*100.0*	*100.0*	*100.0*	*100.0*	*100.0*	*100.0*	*100.0*
1931	91.4	89.5	86.5	83.7	96.7	95.3	100.4	99.2	96.1	94.4
1932	81.6	73.7	74.4	63.4	90.2	83.6	95.5	85.3	88.5	82.8
1933	77.6	66.1	71.5	58.9	81.2	69.3	101.2	85.1	85.2	74.5
1934	80.3	70.4	74.2	63.0	80.5	70.8	118.6	94.5	88.7	80.5
1935	78.9	73.5	71.1	66.4	79.2	72.5	125.4	104.1	89.3	83.2
1936	81.1	77.8	73.9	71.2	79.9	75.9	131.1	111.9	91.3	88.0
1937	82.5	82.1	75.5	75.5	79.9	77.6	130.4	113.9	93.4	94.7
1938	78.0	80.3	67.6	70.4	78.9	79.3	119.5	107.5	92.4	95.7
1938										
January	78.3	80.1	67.6	70.2	81.6	81.3	119.3	105.0	91.9	94.6
February	78.1	78.5	68.7	69.2	77.9	77.5	117.7	104.1	92.0	93.8
March	77.1	79.1	67.0	70.2	77.4	78.0	116.9	104.9	91.8	93.6
April	77.4	79.1	67.3	69.5	78.0	78.0	117.9	103.7	91.6	93.6
May	77.3	79.8	67.1	70.0	78.4	78.9	118.3	106.3	91.2	94.4
June	77.5	79.4	67.1	69.0	78.8	79.5	119.4	106.3	91.4	94.1
July	76.5	78.6	64.6	66.5	79.4	80.1	120.9	110.2	91.9	94.8
August	75.4	77.7	62.6	64.3	78.9	80.1	121.5	111.9	92.1	95.6
September	77.0	78.9	65.7	67.6	79.0	79.9	121.9	110.7	92.0	94.5
October	82.6	90.0	74.5	83.6	78.9	78.6	121.2	112.0	96.6	108.2
November	78.8	80.7	68.5	71.1	79.3	79.5	120.4	107.4	93.5	95.6
December	79.4	82.2	70.6	73.9	79.1	79.9	118.8	107.2	92.9	95.6

[1] Passenger bus companies were first canvassed in April, 1931. In computing index numbers for these companies the same index numbers as those for street railway companies were taken as the initial index numbers of this series (as of April, 1931) and thereafter the index numbers were separately computed.

Two series of index numbers are presented in Table 9, one of which relates to employment and the other to total amounts paid in wages to employees in each of the four classes of public utilities. The only marked changes either in employment or pay rolls were those occasioned by the hurricane and floods in September, which made necessary the employment of large numbers of additional workmen by the three steam railroads operating in the areas affected, and by those gas and electric companies whose properties were damaged, and whose service was interrupted. Employment and the amount of wages paid by these two classes of utility companies were greatly increased during the last three months of 1938, and especially in October. Over 2500 more persons were employed by the steam railroads in October than in September, and 720 more were employed by the gas and electric companies. Because of the necessity of working much overtime, at higher rates of compensation, the actual earnings of many employees of these companies were greatly increased during the emergency period.

Municipal Employment. Questionnaires were first sent to municipalities in April 1931, requesting employment and pay-roll information relative to employees covered by that section of the General Laws relating to the weekly payment of wages to city and town employees. The persons covered are comparable with "wage-earners" in private employment. The form used calls for the reporting of pay-roll data by departments, which makes it possible for reporting officials to enter the current data more readily. It also makes possible a better interpretation of the returns, because any marked departmental changes are more evident than they would be if only a single total were supplied for the municipality as a whole. The group "Manual workers" includes carpenters, painters, electricians, mechanics, teamsters, chauffeurs, laborers, custodians, janitors, matrons, and cleaners. The group "Clerical and other non-manual employees" includes clerks, stenographers, bookkeepers, and all other office employees considered as "wage-earners."

In order to show seasonal fluctuations in road and highway construction work by municipalities, the pay-roll returns for the various street, highway and public works departments are tabulated separately from pay rolls for workers in other departments. Pay-roll data relative to police, fire, and school departments, and hospitals maintained by public funds are not included in this survey.

During 1938, reports were received each month from nearly 100 municipalities in which reside over 80 per cent of the population of this state. Ordinarily the largest numbers of employees are on the pay rolls during the summer months, because municipal construction and highway work are then at their peak. In 1938, by far the greatest numbers of manual workers in highway and public works departments were employed in January, due to emergency snow and ice removal work, and in October as a result of the employment of emergency and temporary employees immediately after the hurricane and floods in September. Two series of index numbers are presented in Table 10, one relating to employment and the other to total amounts paid in wages.

Agricultural Employment. The number of persons employed in agricultural employment in Massachusetts constitutes a relatively small percentage of the total number of persons employed in the state. The first canvass was made in September 1931, which month has been taken as a base in computing the index numbers here presented. The number of farms, market gardens, dairies, etc., in connection with which more than five persons are employed is relatively small in Massachusetts.

In September, 1938, reports were received from 111 employers of agricultural labor who together employed 3,555 workers, and paid them a total of $49,563 in wages. The list included the following: nurseries, wholesale florists, and landscape gardeners, 33; fruit growers, 32; dairies and stock farms, 23; farms and market gardens, 17; and cranberry growers, six. During the winter months these same employers have only about one thousand on their pay rolls. The several classes of employment show somewhat different seasonal trends; for example, the cranberry growers employ additional workmen who prepare

Table 10.—Index Numbers of Employment and Amounts Paid in Wages in Municipal Employment in Massachusetts: By Specified Classes of Employment: by Years, 1932-1938, Inclusive, and by Months in 1938.

(Source—Monthly Survey of Municipal Employment)

Years and Months	Index Numbers (Base:—September, 1931 = 100)									
	Manual Workers						Clerical and Other Non-Manual Employees Paid Weekly		Total—All Classes Specified	
	Highway and Public Works Departments		Other Departments		Total—All Departments					
	Employment	Payrolls	Employment	Payrolls	Employment	Payrolls	Employment	Payrolls	Employment	Payrolls
1931, September (Base)	*100.0*	*100.0*	*100.0*	*100.0*	*100.0*	*100.0*	*100.0*	*100.0*	*100.0*	*100.0*
1932	75.2	70.8	108.1	89.1	86.5	77.1	100.7	101.8	88.6	80.9
1933	69.1	57.7	94.0	76.5	77.7	64.2	104.4	99.7	81.5	69.5
1934	70.7	59.0	87.3	75.2	76.4	64.9	108.3	102.8	80.9	70.6
1935	64.3	60.4	79.9	74.3	69.6	65.3	115.3	116.9	75.9	72.8
1936	72.5	66.9	75.4	73.5	71.3	67.6	116.4	119.7	79.1	76.1
1937	62.6	61.5	73.8	73.4	64.6	64.3	119.4	123.6	74.2	73.9
1938	64.7	63.7	72.9	72.2	65.4	65.0	122.8	127.6	75.3	74.9
1938										
January	99.4	77.5	68.5	69.1	83.1	71.5	125.9	128.5	91.9	81.0
February	55.5	56.0	66.5	67.3	57.7	58.8	124.0	124.3	68.3	68.8
March	53.8	54.7	65.6	66.3	56.4	57.6	123.1	124.5	67.0	67.8
April	59.0	60.2	71.4	71.6	61.6	62.8	122.1	123.4	71.7	72.5
May	60.7	61.5	78.8	76.5	65.6	65.5	117.5	122.5	74.8	74.9
June	62.3	63.7	75.7	74.4	65.3	65.9	118.3	124.4	74.6	75.5
July	61.8	63.6	78.5	78.1	66.1	67.4	121.3	128.4	75.7	77.3
August	60.9	62.8	79.6	76.7	66.0	66.4	121.1	126.6	75.5	76.1
September	64.8	64.8	72.5	71.6	65.3	65.4	121.8	131.2	75.0	75.6
October	73.7	73.4	74.6	74.5	71.1	71.4	124.2	131.7	80.7	81.2
November	63.7	63.6	73.1	70.9	64.8	64.5	129.9	134.1	75.6	75.0
December	61.1	62.6	69.7	69.1	62.0	63.2	124.4	132.1	72.3	73.6

and cultivate the bogs in the spring and summer, and the peak of employment occurs during the harvesting of the berries and, after the harvest, many find further employment in the canneries for several months. Fruit growers employ many additional workers for a very limited time in the fall.

Index numbers representing employment and amounts paid in wages to wage-earners covered by the reports are presented in Table 11, for the years 1932 to 1938, inclusive, and by months in 1938.

Table 11.—Index Numbers of Employment of and Amounts Paid in Wages to Agricultural Laborers in Massachusetts: By Years, 1932-1938, Inclusive, and by Months in 1938.

(Source:—Monthly Survey of Employment of Agricultural Labor)
(Base:—100.0 = September, 1931)

Years	Annual Index Numbers	Months	Monthly Index Numbers, 1938	
			Employment	Amount Paid in Wages
Employment		*1938*		
1932	68.3	January	26.5	19.8
1933	58.0	February	25.1	19.4
1934	57.7	March	25.2	19.5
1935	56.3	April	41.1	30.3
1936	49.4	May	46.6	33.9
1937	45.6	June	45.4	31.2
1938	43.1	July	47.7	29.4
Amount Paid in Wages		August	43.7	27.8
1932	45.6	September	84.3	44.0
1933	37.4	October	57.9	35.1
1934	32.1	November	42.9	28.6
1935	31.1	December	30.7	23.0
1936	29.3			
1937	30.6			
1938	28.5	*Average*	*43.1*	*28.5*

Miscellaneous Classes of Employment. In order that the coverage of the monthly surveys might be more complete, 13 somewhat unrelated classes of employment have been added to the series since 1931. For 12 of these 13 classes index numbers of employment and amounts paid in wages are presented in Table 12. The quarrying and non-metallic mining class was added to the series in January, 1937, but no index numbers have been computed because no earlier data are available to serve as a base in deriving index numbers comparable with those for the other classes.

For the reporting week in December, 1938, returns were received from 677 miscellaneous establishments, representing 868 units or branches, 36,467 wage-earners, and a total pay roll of $770,415.

In five of the 12 classes for which index numbers are presented in Table 12, employment for the year 1938 as a whole was somewhat greater in 1938 than in 1937. The five classes were: banks and trust companies; hospitals; insurance companies and agencies; schools and colleges; and theatres. In each of these five classes and also in clubs and associations there were increases in the amounts paid in wages to employees. Rather large decreases in 1938 as compared with 1937 occurred both in employment and amount paid in wages by companies engaged in express and transfer service and general trucking and stevedoring.

The usual seasonal fluctuations in employment occurred in 1938 in the following classes of employment: marked increases in hospitals, hotel service (not including hotel restaurants), dyeing and cleansing, and laundries; and decreases in clubs and associations, schools and colleges, hotel restaurants, and general trucking and stevedoring. In the fall there were large increases in employment in schools and colleges, express and transfer service, and general trucking and stevedoring. Employment by banks and trust companies, and insurance companies and agencies, and in theatres was quite regular throughout the year.

Some of the employees of clubs and associations, hospitals, hotels and hotel restaurants receive subsistence in the nature of meals, board, lodgings, etc., in addition to stipulated salaries or wages, but such payments "in kind" are not considered in this survey. Reports from hospitals and from schools and colleges include office employees and those employed in buildings and on the grounds but do not include the professional or semi-professional personnel, or members of the teaching staff in schools and colleges.

Building Statistics. Beginning with January, 1927, monthly reports relative to building permits granted have been received from each of 55 municipalities in Massachusetts. The reports cover approximately 90 per cent of the building operations in the state, exclusive of state and federal building, permits for which are not required in nearly all of the municipalities. Summaries of the returns are issued each month in mimeographed form, and an annual summary is also prepared. The questionnaire used in the collection of this information calls for the number of applications filed for permits to build, the estimated cost of the work, classified by types of building and intended use, and the number of family accommodations to be provided. Copies of the reports for each of the 55 municipalities and for certain additional towns are forwarded to the U. S. Bureau of Labor Statistics for inclusion in its nation-wide summaries.

In Table 13 data are presented in summary form showing the returns for 55 municipalities, combined, for the year 1938, and the number and cost of the different classes of structures. The data for new residential buildings are classified in two major groups,—housekeeping dwellings and non-housekeeping dwellings. Housekeeping dwellings are further sub-divided into one-family, two-family, and multi-family dwellings, combined stores and dwellings, and camps. The number of family accommodations provided in each of the four classes of new residential buildings is also shown. Non-housekeeping dwellings include club and association buildings with bedrooms, hotels, lodging houses, etc. New non-residential buildings are classified so as to show, separately, data for each of 14 important classes of structures. For additions, alterations and repairs, totals only are presented.

Table 12.—Index Numbers of Employment and Amounts Paid in Wages in Twelve Miscellaneous Classes of Employment in Massachusetts: By Years, 1932-1938, Inclusive, and by Months in 1938.

(Source:—Monthly Survey of Miscellaneous Classes of Employment)

(Base:—September, 1931 = 100.0)

Years and Months	Banks and Trust Companies	Clubs and Associations	Dyers and Cleansers [1]	Express and Transfer Service	General Trucking and Stevedoring	Hospitals	Hotel Restaurants [2]	Hotel Service	Insurance Companies and Agencies	Laundries	Schools and Colleges	Theatres
Employment												
1932	93.6	97.1	88.8	79.4	83.1	99.3	88.2	92.1	99.8	95.6	96.8	72.9
1933	87.1	88.9	80.3	98.1	83.6	97.9	79.3	77.8	100.4	93.9	82.4	49.2
1934	86.8	86.7	82.4	107.5	84.2	99.4	94.6	72.4	105.3	93.4	77.5	50.9
1935	87.1	79.7	87.7	113.8	85.2	99.5	73.9	73.0	107.9	92.1	73.9	46.7
1936	88.0	89.4	93.4	113.3	85.3	107.9	80.4	77.8	110.4	91.4	77.5	45.3
1937	89.5	95.0	90.6	114.2	85.0	118.2	84.0	76.5	111.9	95.6	84.6	48.9
1938	89.7	93.7	81.5	107.6	73.3	123.6	81.6	72.9	115.4	93.0	92.1	50.7
1938												
January	89.6	97.9	72.0	102.7	79.5	120.9	83.6	74.9	116.1	92.6	96.5	50.6
February	89.1	99.1	71.6	98.6	77.6	120.5	83.1	75.2	116.2	92.0	98.	50.9
March	88.8	99.6	70.5	97.9	68.0	121.5	82.9	74.6	116.3	91.2	98.3	50.8
April	88.8	98.6	86.1	104.4	65.8	121.6	80.1	73.9	116.2	91.9	99.3	50.8
May	88.9	92.2	85.0	106.9	66.9	123.1	87.7	75.1	115.2	93.2	100.7	51.5
June	89.6	86.6	88.1	107.4	66.1	125.2	83.2	75.8	115.3	93.4	92.5	49.0
July	90.9	80.2	86.9	102.9	67.9	128.0	78.1	80.9	114.4	95.4	69.4	50.5
August	90.8	80.8	84.3	102.7	72.5	126.0	75.9	80.3	114.7	95.9	66.1	50.6
September	90.2	89.0	87.3	106.5	76.4	125.2	77.9	73.2	114.4	94.1	84.3	50.7
October	90.2	98.7	86.8	111.2	79.5	123.6	83.0	63.7	114.1	92.8	98.3	51.0
November	89.9	101.7	82.7	114.6	79.0	123.7	80.7	63.8	114.9	92.3	101.1	51.3
December	90.1	99.5	77.1	135.1	80.7	124.4	83.1	62.9	116.4	91.7	100.2	50.9
Amounts Paid in Wages												
1932	89.5	93.7	77.0	69.0	76.9	98.4	79.8	89.1	99.7	87.2	76.3	75.7
1933	81.2	78.8	66.2	79.8	77.4	95.1	62.5	70.2	102.6	78.6	57.7	48.5
1934	81.0	78.0	78.9	85.0	85.8	102.1	84.9	76.8	106.9	81.3	54.5	49.8
1935	82.6	74.0	80.7	93.7	93.3	108.4	78.6	82.3	111.5	79.7	53.2	47.5
1936	83.2	84.2	83.7	96.1	97.6	117.9	85.9	83.7	115.1	79.4	54.2	45.6
1937	85.9	93.4	88.1	102.8	105.5	130.9	91.3	84.5	115.4	84.9	57.7	45.8
1938	88.8	94.7	82.6	93.3	87.1	143.0	90.3	84.2	120.1	82.9	59.9	48.8
1938												
January	87.0	95.6	69.3	88.5	92.6	135.3	93.5	86.1	119.6	82.0	60.5	49.9
February	88.0	96.8	70.0	84.4	88.2	135.6	94.2	85.8	120.0	81.2	63.3	51.4
March	87.7	96.4	70.8	82.2	79.3	135.9	91.0	86.4	121.3	80.2	63.7	49.9
April	87.9	97.6	94.0	92.8	76.8	135.8	87.1	84.2	121.1	82.1	63.2	49.5
May	89.2	95.3	88.4	92.2	80.0	137.8	96.2	87.1	119.5	82.8	63.4	50.4
June	89.4	92.0	95.9	95.5	76.7	140.3	90.1	86.1	120.2	84.3	59.0	46.4
July	90.8	85.0	87.1	88.6	82.7	151.9	83.3	91.4	121.2	85.2	50.3	47.7
August	89.3	89.0	85.2	86.7	86.2	149.2	80.0	89.2	118.5	87.7	46.4	47.9
September	87.9	92.9	92.6	90.9	92.0	150.5	86.0	85.2	117.9	82.7	53.5	47.7
October	89.6	97.9	85.7	96.8	99.0	146.9	91.8	77.5	119.2	82.4	65.3	48.3
November	89.2	100.0	79.5	96.4	94.1	148.2	93.6	76.6	120.9	81.9	65.8	48.5
December	89.1	97.7	72.6	124.6	98.0	148.6	97.3	74.9	121.6	83.4	64.8	47.9

[1] The survey of dyers and cleansers was first undertaken in May, 1932. In computing the series of index numbers, the level of employment in May, 1932, was assumed to be the same as for laundries. The average shown for 1932 is for the eight months, May to December, inclusive.

[2] See Table 6 for index numbers for lunch rooms and restaurants not in hotels.

Of the estimated cost of all residential buildings ($16,090,793) for which permits were granted in the 55 municipalities in 1938, $13,402,323, or 83.3 per cent, was for one-family dwellings; $1,684,700, or 10.4 per cent, was for multi-family dwellings; $674,500, or 4.2 per cent, was for two-family houses, and $329,270, or 2.1 per cent, was for dwellings and stores combined, camps and non-housekeeping dwellings. The total number of family accommodations to be provided was 3,460, of which 2,650, or 76.6 per cent, were in one-family dwellings; 594, or 17.2 per cent, were in multi-family houses; 212, or 6.2 per cent, were in two-family houses; and four were in dwellings and stores combined. In 26 of the 55 municipalities *all* of the family accommodations provided were in one-family dwellings.

The total number of new non-residential buildings planned in 1938 was 4,114, the estimated cost of which was $17,474,975. The six principal classes, on the basis of estimated cost, were: 33 office buildings, including banks, $3,464,008; 17 institutional buildings, $3,276,216; 13 grade and high schools (public and private), $2,479,224; 168 stores, restaurants and other mercantile buildings, $1,574,320; 15 public buildings, including libraries and museums, $1,286,193; and 48 amusement and recreation places, $988,935.

The estimated cost of additions, alterations and repairs for which permits were granted in the 55 municipalities in 1938 amounted to $15,395,045. The number of such permits was 17,706, which included both residential and non-residential buildings.

Table 13.—Summary of Prospective Building in Fifty-Five Municipalities in Massachusetts in 1938: By Class of Structures.

1—New Residential Buildings

Classes of Structures	Number of Dwellings	Estimated Cost of Dwellings	Number of Family Accommodations
Housekeeping Dwellings:			
One-family	2,650	$13,402,323	2,650
Two-family	106	674,500	212
Multi-family	59	1,684,700	594
Dwellings and stores combined	4	32,500	4
Camps	235	122,770	–
Totals, All Housekeeping Dwellings	3,054	$15,916,793	3,460
Non-housekeeping Dwellings (all classes)	5	174,000	–
Totals, New Residential Buildings	*3,059*	*$16,090,793*	*3,460*

2—New Non-residential Buildings

Classes of Structures	Number of Buildings	Estimated Cost	Rank on Basis of Cost
Amusement and recreation places (including club buildings without bedrooms)	48	$988,935	6
Churches, chapels, and parish houses	15	634,010	9
Factories, bakeries, ice-plants, greenhouses, laundries, and other workshops	105	712,737	8
Garages, private	2,476	833,438	7
Garages, public	28	351,350	13
Gasoline and service stations	137	451,095	12
Institutional buildings	17	3,276,216	2
Office buildings, including banks	33	3,464,008	1
Public buildings, including libraries and museums	15	1,286,193	5
Public works and utilities	20	509,284	10
Schools, grade and high (public and private)	13	2,479,224	3
Sheds, poultry houses, and other minor outbuildings	895	249,565	14
Storage warehouses, coal pockets, lumber sheds, etc.	102	507,765	11
Stores, restaurants, and other mercantile buildings	168	1,574,320	4
All other non-residential buildings	42	156,835	15
Totals, New Non-residential Buildings	*4,114*	*$17,474,975*	–

3—Additions, Alterations and Repairs

Classes of Structures	Number of Buildings	Estimated Cost
Totals—Additions, Alterations and Repairs	*17,706*	*$15,395,045*

Table 14.—Estimated Cost of Building Construction in 20 Leading Municipalities in Massachusetts in 1938: By Classes of Work.

Municipalities	New Residential Building	New Non-Residential Building	Additions, Alterations, and Repairs	Total
Arlington	$737,700	$41,025	$230,807	$1,009,532
Belmont	695,400	19,635	429,612	1,144,647
Boston	1,916,000	4,242,009	5,115,871	11,273,880
Brookline	1,382,100	429,725	253,610	2,065,435
Cambridge	245,600	2,331,770	633,149	3,210,519
Dedham	169,715	244,507	93,113	507,335
Fall River	122,625	410,550	147,989	681,164
Lawrence	79,400	270,695	280,123	630,218
Lynn	224,759	834,247	904,447	1,963,453
Medford	373,550	730,510	63,440	1,167,500
Milton	673,700	76,075	193,490	943,265
Needham	629,900	83,154	111,740	824,794
New Bedford	73,900	141,649	301,340	516,889
Newton	1,744,947	800,505	292,970	2,838,422
Pittsfield	438,600	264,532	196,315	899,447
Quincy	574,200	447,871	393,128	1,415,199
Springfield	513,750	1,283,951	449,230	2,246,931
Waltham	368,850	275,655	178,206	822,711
Wellesley	1,050,100	638,090	160,425	1,848,615
Worcester	1,005,255	1,012,420	1,324,249	3,341,924

In each of 20 municipalities the estimated cost of the work for which permits were granted in 1938 exceeded $500,000. The data for each of these cities, by classes of work, are presented in Table 14. Boston far outranked all other municipalities specified in the total estimated cost of all classes of construction. In six of the municipalities the amounts exceeded two million dollars, as follows: Boston, $11,273,880; Worcester, $3,341,924; Cambridge, $3,210,519; Newton, $2,838,422; Springfield, $2,246,931; and Brookline, $2,065,435. About two-thirds of all construction work planned was in the metropolitan Boston area.

On the basis of the estimated cost of new residential buildings in 1938, Boston led all other municipalities with $1,916,000. Newton was a close second with $1,744,947, and Brookline was third with $1,382,100. In non-residential construction wide variations were noted as large individual projects had considerable effect on the totals. In Boston the estimated cost of additions, alterations and repairs exceeded by $874,000 the value of new non-residential construction planned, and exceeded by $3,200,000 the value of new residential construction planned. In Worcester the estimated cost of additions, alterations and repairs exceeded by over $300,000 the estimates in each case for new residential and new non-residential construction.

In Table 15 summary data are presented showing by classes of projects the number and estimated cost of the three major classes of construction for which permits were granted during each of the years 1927-1938, inclusive, and by months in 1938.

Special Investigations

Compilation of Statistics Relative to the Textile Industry. For the use of Mr. William J. Moore, Special Council, appointed by the Governor, and for organizations and individuals interested in the proposed reciprocal agreement between the United States and the United Kingdom, a large fund of information with reference to the textile industry in Massachusetts was compiled. This material was not printed, but typewritten copies were furnished to those desiring to use it at the hearings held in Washington.

The compilation included principal data for each of the years 1926-1936 for the five important branches of the textile industry (cotton goods, woolen and worsted goods, dyeing and finishing textiles, knit goods, and silk and rayon goods) for each of the cities and towns in Massachusetts which would be most seriously affected by reductions in tariff rates on textiles. Additional data and charts were presented, showing the monthly trends of employment and earnings of wage-earners in each of the five important branches of the textile industry during the period 1926-1938. Copies of post-war British tariff rates and

Table 15.—Number and Estimated Cost of Buildings in 55 Municipalities in Massachusetts: By Years, 1927-1938, Inclusive, and by Months in 1938; By Classes of Projects.

Years and Months	New Residential Building	New Non-Residential Building	Additions, Alterations, and Repairs	Totals—All Classes of Projects
Number of Buildings				
1927	11,418	14,231	18,666	44,315
1928	10,580	12,967	17,184	40,731
1929	6,759	12,039	17,607	36,405
1930	4,931	9,615	16,417	30,963
1931	4,587	8,392	16,210	29,189
1932	1,806	5,134	14,115	21,055
1933	1,786	4,188	13,495	19,469
1934	1,314	3,800	14,254	19,368
1935	1,800	3,978	16,362	22,140
1936	2,935	4,474	16,996	24,405
1937	3,423	4,574	16,570	24,567
1938	3,059	4,114	17,706	24,879
Number of Buildings in 1938: By Months				
1938				
January	134	114	653	901
February	172	152	802	1,126
March	292	293	1,273	1,858
April	319	389	1,489	2,197
May	365	388	1,543	2,296
June	356	421	1,481	2,258
July	273	369	1,365	2,007
August	305	381	1,497	2,183
September	238	403	1,863	2,504
October	192	504	3,194	3,890
November	232	437	1,670	2,339
December	181	263	876	1,320
Totals, 1938	*3,059*	*4,114*	*17,706*	*24,879*
Estimated Cost				
1927	$101,959,226	$51,765,595	$27,574,615	$181,299,436
1928	96,878,609	52,047,563	22,122,372	171,048,544
1929	69,936,017	53,945,280	29,774,203	153,655,500
1930	40,146,313	45,173,157	22,033,838	107,353,308
1931	32,956,935	38,495,601	14,240,473	85,693,009
1932	9,797,266	11,800,136	10,771,930	32,369,332
1933	9,513,475	5,646,159	9,859,614	25,019,248
1934	7,399,030	10,367,863	11,937,370	29,704,263
1935	10,893,651	12,854,240	13,036,665	36,784,556
1936	18,019,877	13,806,670	16,214,293	48,040,840
1937	21,736,137	20,702,398	17,417,605	59,856,140
1938	16,090,793	17,474,975	15,395,045	48,960,813
Estimated Cost in 1938: By Months				
January	$677,750	$262,003	$691,755	$1,631,508
February	922,200	339,673	1,251,898	2,513,771
March	1,508,875	2,129,155	2,034,085	5,672,115
April	1,882,385	1,462,023	1,150,330	4,494,738
May	1,642,065	1,326,336	1,227,484	4,195,885
June	1,884,386	717,568	1,455,334	4,057,288
July	1,438,995	764,580	1,601,017	3,804,592
August	1,437,665	5,121,437	1,412,478	7,971,580
September	1,240,000	1,215,742	928,738	3,384,480
October	899,175	1,696,965	1,611,874	4,208,014
November	1,394,862	1,187,741	1,118,997	3,701,600
December	1,162,435	1,251,752	911,055	3,325,242
Totals, 1938	*$16,090,793*	*$17,474,975*	*$15,395,045*	*$48,960,813*

schedules and extracts from publications relative to such rates were also presented in order to show the changes in British tariff rates beginning with the McKenna duties of 1915 when war-time conditions resulted in Britain's departure from a free trade policy.

Survey of Tourist Trade in 1938.—The "tourist trade" has become an increasingly important source of revenue in Massachusetts. As no comprehensive statistics with reference to such trade in Massachusetts had previously been available, the Division of Statistics at the request of the Massachusetts Development and Industrial Commission made a survey by mail and by its statistical investigators of agencies which cater to tourists on all of the main tourist routes.

This survey did not include year-round or seasonal hotels designated as such and providing hotel accommodations as the major business; nor did it include apartment or residential hotels, boarding or lodging houses, dormitories, or other establishments which furnish lodging or meals or both to guests for extended periods of time.

Because of the limited time which could be devoted to the field work the survey was not exhaustive, but the results indicate the importance of the tourist trade in Massachusetts. Reports were received from 146 tourist camps of the cabin type, having a total of 1,296 guest rooms with accommodations for 3,204 guests and from 238 tourist homes (private residences), having a total of 1,186 rooms with accommodations for 2,544 guests. The total income in 1938 from 105 tourist camps reporting income was $112,367 and from 218 tourist homes was $74,312. Reports were also received from 171 restaurants, cafes, etc., which catered wholly or principally to tourists, having a seating capacity of 15,011 and the total receipts of which amounted to $1,935,484. The total value of property for 148 of the 171 establishments on record was $1,943,250. The results of this survey were issued in the form of mimeographed press releases.

Special Inquiry Relative to Damages Caused by the Hurricane and Floods in September, 1938.—In order to answer inquiries relative to damages caused by the hurricane which occurred on September 21, 1938 and of floods in certain areas during the same week the Division of Statistics sent special questionnaires to those companies which furnish pay-roll information to the division each month. The coverage of this inquiry was almost complete for gas and electric companies and transportation, and for each of the other industrial groups the companies reporting employ about 55 per cent of the total number of wage-earners employed in all establishments in the several groups, and it may be assumed that operations were suspended and damages were sustained proportionately by those companies from which reports were not received. The following is a summary of the returns.

Table 16.—Summary of Reports Relative to Damages Caused by the Hurricane and Flood Waters in Massachusetts Affecting Industrial and Business Properties in September, 1938.

Industrial and Business Groups	Companies Not Affected	Companies Affected				
		Number of				
		Companies	Days Operations Were Suspended	Employees Temporarily Out of Work	Loss in Wages to Employees	Estimated Cost of Repairs or Replacements
Gas and electric companies	8	58	–	–	–	$3,919,200
Manufacturing	551	587	1,295½	60,084	$586,066	2,977,015
Transportation	9	15	23½[1]	956[1]	28,415	2,707,863
Wholesale and retail trade	428	166	104	650	4,889	190,308
Miscellaneous	138	65	65	501	2,893	54,700
Totals	*1,134*	*891*	*1,488*	*62,191*	*$622,263*	*$9,849,086*

[1] The three steam railroad companies were unable to furnish any data bearing on number of days operations were suspended or number of employees temporarily out of work because of the complexity of conditions which resulted from both hurricane and flood waters. In all probability nearly all lost time was made up, although some small branch lines were still not being operated when this statement was prepared.

Of the 2,025 companies which reported, 1,134 stated that there was no suspension of operations and no damages were caused. The 891 companies affected reported that the total number of days operations were suspended amounted to 1,488 (an average of nearly two days per company), and that 62,191 employees were temporarily thrown out of work, with a loss of wages amounting to $622,263 (approximately $10 per employee). The estimated cost of repairs or replacements amounted to $9,849,086, but some of the companies were not able to furnish an estimate of the cost of repairs and the total here given may be an understatement. A large number of the companies

which reported that regular operations of their plants were temporarily suspended stated that their employees lost little or no time or wages because they were employed on repair and rehabilitation work. On the other hand some companies, such as public utility companies, found it necessary to employ many additional workmen on emergency work for several weeks.

Nearly all of the estimated cost of repairs or replacements by transportation companies, amounting to $2,707,863, was reported by the steam railroads. Street railway and passenger bus service was not seriously interrupted except in certain flood areas, and then only for a short period.

There was little suspension of operations among the establishments in wholesale and retail trade, and the total property damage reported was only $190,308. In the miscellaneous classes (hotels, theatres, banks, laundries, etc.) there were few serious interruptions and only relatively unimportant damages were sustained.

The results of this special inquiry were issed in the form of mimeographed press releases.

STATISTICS OF STRIKES IN MASSACHUSETTS

The Division of Statistics maintains a record of strikes which occur in Massachusetts and cooperates with the Bureau of Labor Statistics of the U. S. Department of Labor in this work. The original records, furnished to the division by the Massachusetts Board of Conciliation and Arbitration, are supplemented by further information obtained from other sources. These preliminary records are forwarded at intervals to the federal office, from which office inquiry forms, relative to the strikes, are sent to employers and labor organizations concerned, in order to verify the original records, and to secure information in further detail. In some cases, where the federal office is unable to secure information by correspondence, the statistical investigators in the Division of Statistics visit the employers and officials of labor organizations in order to secure the desired information for the federal bureau.

On completion of the records for the year, the data are tabulated, and any variations between the records of the federal bureau and this office are adjusted, in order that the final returns may be the same for each office.

The following is a record of strikes in Massachusetts during the period 1927-1938.

Table 17.—Statistics of Strikes in Massachusetts, 1927-1938.

(Source—U. S. Department of Labor, Bureau of Labor Statistics)[1]

Years	Number of Strikes Beginning in Year	Workers Involved			Man-Days Idle	
		Number	Per Cent of Total in U. S.	Average Number per Strike	Number	Per Cent of Total in U. S.
1927	68	10,779	3.3	159	162,157	0.6
1928	90	46,865	14.9	521	4,008,413	31.7
1929	78	23,673	8.2	304	862,300	16.1
1930	45	5,274	2.9	117	61,563	1.9
1931	63	47,954	14.0	761	1,106,746	16.1
1932	65	9,763	3.0	150	130,996	1.2
1933	161	88,754	7.6	551	1,411,408	8.4
1934	112	116,422	7.9	1,039	1,339,084	6.8
1935	110	26,321	2.4	239	605,188	3.9
1936	111	34,193	4.3	308	432,223	3.1
1937	277	55,360	3.0	200	602,037	2.1
1938	123	14,941	2.2	121	184,914	2.0

[1] The statistics presented in Table 17 are as published by the U. S. Department of Labor, Bureau of Labor Statistics, and, for the years 1935, 1936, 1937 and 1938 are in full agreement with the records compiled by the Division of Statistics in the Massachusetts Department of Labor and Industries. For an "Analysis of Strikes, 1927–1936," see *U. S. Labor Bulletin No. 651*, entitled "Strikes in the United States, 1880–1936," pages 41–160.

The total number of strikes in Massachusetts in 1938 was 123, the number of workers involved was 14,941, and the total number of man-days idle as a result of these strikes was 184,914, showing a marked decrease in each item when compared with 277 strikes, 55,360 workers involved, and 602,037 man-days idle as a result of the strikes which occurred in 1937. The number of

workers involved in strikes and the number of man-days idle as a result of strikes in Massachusetts in 1938 were the smallest recorded in any year since 1932.

The number of workers involved in the 123 strikes in Massachusetts in 1938 was 14,941, or only 2.2 per cent of the total number of workers (688,376) involved in the 2,772 strikes in the United States in that year, and the number of man-days idle as a result of the strikes in Massachusetts was 184,914, or only 2.0 per cent of the total number of man-days idle (9,148,273) as a result of the strikes in the United States in 1938. According to the United States census of population taken in 1930 (the latest year for which the data are available) the total number of persons "gainfully employed" in Massachusetts was 1,814,315, which number constituted 3.7 per cent of the total number of persons "gainfully employed" in the United States in 1930 (48,829,920). A comparison of the percentages above given indicates that the number of workers involved in the strikes and the number of man-days idle as a result of the strikes in Massachusetts in 1938 were proportionately less than the corresponding numbers for the United States as a whole.

With a few exceptions the strikes in Massachusetts in 1938 involved relatively small numbers of workers and were of short duration. In Table 18 data are presented showing the number of strikes, classified by number of workers involved, number of days duration, and number of man-days idle.

Table 18.—Number of Strikes in Massachusetts in 1938: Classified by Number of Workers Involved, Number of Days Duration and Number of Man-Days Idle.

Number of Workers Involved	Number of Strikes	Number of Days Duration	Number of Strikes	Number of Man-Days Idle	Number of Strikes
Less than 10	11	5 days or less	43	Less than 50	19
10–24	25	6–10 days	26	50–99	10
25–49	29	11–15 days	18	100–249	21
50–74	5	16–20 days	9	250–499	23
75–99	15	21–25 days	3	500–999	17
100–199	15	26–30 days	10	1,000–1,999	12
200–299	8	31–35 days	4	2,000–2,999	10
300–399	6	36–40 days	–	3,000–3,999	1
400–499	–	41–44 days	3	4,000–4,999	3
500–999	8	45–49 days	1	5,000–9,999	4
Over 1000	1	50 or over	6	10,000 or over	3
Total	*123*	*Total*	*123*	*Total*	*123*

In 85 of the 123 strikes in 1938 less than 100 workers were involved; the duration of 69 strikes was ten days or less; and the number of man-days idle as a result of each of 73 strikes was less than 500. The largest number of workers involved in any strike was 1,300, which strike continued for eight days. The longest duration of any strike in 1938 was 98 days, and the largest number of man-days lost as a result of any strike was 30,239, which strike lasted for 76 days.

In Table 19 data are presented showing the number of strikes, the number of workers involved and the number of man-days idle in 1938 in cities and towns in each of which more than one strike occurred.

The cities in which three or more strikes occurred in 1938 were: Boston, 34; Springfield, 11; Fall River, 9; Lynn, 7; Lowell, 6; Somerville, 5; New Bedford, 4; Worcester, 4; and Quincy, 3. The cities in which there were three or more strikes and in which 500 or more workers were involved in strikes were: Boston, 3,872; Lynn, 1,641; Fall River, 1,075; Lowell, 808; Springfield, 595; and New Bedford, 567.

The number of man-days idle is a better measure of the effect of strikes in any municipality than the number of strikes or the number of persons involved. The cities in which there were three or more strikes and in which the number of man-days idle as a result of the strikes in 1938 exceeded 1,000 were: Boston, 32,316; New Bedford, 18,716; Lynn, 10,350; Fall River, 7,292;

Table 19.—Number of Strikes, Number of Workers Involved, and Number of Man-Days Idle in Massachusettts in 1938: by Cities and Towns.

Cities and Towns	Number of Strikes Beginning in 1938	Number of Workers Involved	Number of Man-Days Idle
Boston	34[1]	3,872[1]	32,316[1]
Chicopee	2	331	1,249
Easthampton	2	66	276
Fall River	9	1,075	7,292
Fitchburg	2[1]	231[1]	2,568[1]
Haverhill	2	212	1,028
Lowell	6	808	3,124
Lynn	7[1]	1,641[1]	10,350[1]
Milford	2	214	14,190
New Bedford	4	567	18,716
Northampton	2[1]	693[1]	30,449[1]
Quincy	3	198	1,495
Somerville	5	180	3,451
Springfield	11	595	4,299
Willimansett	2	62	356
Woburn	2	13	56
Worcester	4[1]	255[1]	1,955[1]
Other cities and towns (23)[2]	24	3,928	51,744
Totals (40 cities and towns)	*123*	*14,941*	*184,914*[3]

[1] Eleven strikes extended beyond the limits of a single city or town. The totals here shown for the respective cities and towns include all of the workers involved and the entire number of man-days idle as a result of such strikes, because it was not possible to secure definite data for the several municipalities affected. The areas affected by the eleven strikes which extended beyond the limits of a single city or town were as follows:

Greater Boston—meat workers (6 factories)
Boston and Brockton—Truck and transfer drivers
Boston, Quincy, Newton and Waltham—Lumber truck drivers
Boston and North Easton—Rubber workers
Fitchburg and Worcester—Drivers, meat cutters and clerks
Lynn and Salem—Truck drivers
Lynn, Salem and Malden—Truck drivers and helpers
Worcester, Northborough and Grafton—Building Tradesmen— (five jobs)
Northampton and Florence—Winders in hosiery mills
Arlington, Malden, Everett and Revere—Bus drivers and mechanics
Taunton and New Bedford—Lumber truck drivers

[2] One strike in each of the following cities and towns: Adams, Amesbury, Arlington, Barre, Brockton, Carver, Chelsea, Everett, Framingham, Gloucester, Holyoke, Lawrence, Malden, Marlborough, Merrimac, Millbury, Milton, Newton, Norwood, Peabody, Revere, Taunton and Wilbraham. (See also Note 1.)

[3] Includes 19,027 man-days idle as a result of five strikes which began in 1937, and which continued in 1938.

Springfield, 4,299; Somerville, 3,451; Lowell, 3,124; Worcester, 1,955; and Quincy, 1,495.

Eleven of the 123 strikes extended beyond the limits of a single city or town. The totals given in Table 19 for the respective cities and towns included all of the workers involved and the entire number of man-days idle in all of the other cities or towns in the area affected by the strike, because it was not possible to secure definite data for each of the several cities and towns separately. The number of strikes which extended beyond the limits of a single city or town were: Boston, four; Lynn, two; and Fitchburg, Worcester, Northampton, Arlington and Taunton, one each.

In Table 20 the number of strikes, the number of workers involved and the number of man-days idle are presented by occupations of the workers involved.

There were three or more strikes of workers in each of the following occupations: Teamsters, truck, bus and taxi drivers, 20; boot and shoe workers, 13; garment workers, 11; textile workers, 10; furniture workers, 8; cleaners, dyers and laundry workers, 7; building tradesmen, 5; employees in wholesale and retail trade, 5; restaurant workers, 4; rubber workers, 3; leather and tannery workers, 3; meat workers, 3; water transportation workers, 3; granite and stone workers, 3; and bakery workers, 3.

The occupations in which there were three or more strikes and in which 500 or more workers were involved were: boot and shoe workers, 3,156; textile workers, 3,003; garment workers, 1,546; teamsters, truck, bus and taxi drivers, 1,487; meat workers, 872; leather and tannery workers, 749; and rubber workers, 554.

Table 20.—Number of Strikes, Number of Workers Involved, and Number of Man-Days Idle in Massachusetts in 1938: By Occupations of Workers Involved.

Occupations (Arranged in the order of number of man-days lost)	Number of Strikes Beginning in 1938	Number of Workers Involved	Number of Man-Days Idle
Textile workers	10	3,003	61,302
Rubber workers	3	554	23,851
Boot and shoe workers	13	3,156	21,350
Teamsters, truck, bus and taxi drivers	20	1,487	11,017
Leather and tannery workers	3	749	9,576
Garment workers	11	1,546	9,319
Meat workers	3	872	6,852
Trade, wholesale and retail	5	272	3,608
Furniture workers	8	346	3,549
Cleaners, dyers and laundry workers	7	239	3,543
Water transportation workers	3	105	1,731
Building tradesmen	5	177	1,414
Granite and stone workers	3	185	1,322
Restaurant workers	4	66	1,118
Curtain workers	2	270	786
Bakery workers	3	157	584
All other occupations[1]	20	1,757	23,992
Totals—All Strikes	*123*	*14,941*	*184,914*[2]

[1] One strike in each of the following occupations: Automobile parts makers, box makers, brewery workers, casket makers, cemetery workers, electrical supply workers, farm laborers, fish workers, gas workers, hat makers, liquor distributors, optical workers, paper workers, paper box makers, printers and engravers, school supply workers, shuttle workers, stationary engineers and firemen, steel workers, tobacco pickers, and truss makers.

[2] Includes 19,027 man-days idle as a result of five strikes which began in 1937 and which continued into 1938. These strikes were as follows: boot and shoe workers (1); textile workers (2); garment workers (1); and automobile part makers (1).

In each of the following occupations in which there were three or more strikes, the number of man-days idle as a result of strikes exceeded 1,000: textile workers, 61,302; rubber workers, 23,851; boot and shoe workers, 21,350; teamsters, truck, bus and taxi drivers, 11,017; leather and tannery workers, 9,576; garment workers, 9,319; meat workers, 6,852; employees in wholesale and retail trade, 3,608; furniture workers, 3,549; cleaners, dyers, and laundry workers, 3,543; water transportation workers, 1,731; building tradesmen, 1,414; granite and stone workers, 1,322; and restaurant workers, 1,118.

In Table 21 data are presented showing the number of strikes which began in Massachusetts in 1938, the number of workers involved and the number of man-days idle, by months in which the strikes began.

Table 21.—Number of Strikes, Number of Workers Involved, and Number of Man-Days Idle in Massachusetts in 1938: By Months in Which the Strikes Began.

Months[1] 1938	Number of Strikes Beginning	Number of Workers Involved	Number of Man-Days Idle[1]
(Began in 1937)	–	–	19,027[2]
January	7	799	5,971
February	8	2,639	17,707
March	11	2,420	38,064
April	16	2,024	39,852
May	9	592	6,585
June	12	514	7,632
July	7	468	11,585
August	20	2,319	16,328
September	7	283	2,902
October	12	1,336	6,664
November	10	585	2,935
December	4	962	9,662
Totals	123	14,941	181,914

[1] Some of the strikes continued beyond the close of the month in which they began, and, consequently, the numbers do not represent the actual numbers of man-days idle *entirely within* the months in which the strikes began.

[2] Number of man-days idle, as a result of five strikes, which began in 1937, and which continued into 193

The months in which ten or more strikes began in 1938 were: August, 20; April, 16; June, 12; October, 12; March, 11; and November, 10. On the basis of number of workers involved, the months in each of which over 1,000 workers became involved were: February, 2,639; March, 2,420; August, 2,319; April, 2,024; and October, 1,336. The months in each of which strikes began resulting in over 10,000 man-days idle were: April, 39,852; March, 38,064; February, 17,707; August, 16,328; and July, 11,585. Some of the strikes continued beyond the close of the month in which the strikes began, and, consequently, the numbers given do not represent the actual number of man-days idle *entirely within* the month in which the strikes began.

Causes of Strikes. In Table 22, the 123 strikes which began in 1938 are classified according to their *major* causes. In some cases there was more than one question at issue. For example, where there were demands for union recognition and for a definite scale of wages and hours of labor, union recognition was considered the major issue. For purposes of discussion the strikes have been classified into three general groups as follows: (1) Wages and hours, (2) Union organization, and (3) Miscellaneous.

Of the 123 strikes which began in 1938, 60, or 48.8 per cent, related to union organization; 41, or 33.3 per cent, to wages and hours; and 22, or 17.9 per cent, were in the miscellaneous group. Of the 14,941 workers involved, 6,169, or 41.3 per cent, were in strikes of which the major cause was union organization; 5,749, or 38.5 per cent related to wages and hours; and 3,023, or 20.2 per cent, were due to miscellaneous causes. Of the 184,914 man-days idle, 100,652, or 54.4 per cent, were on account of strikes, the major causes of which were wages and hours; 68,681, or 37.2 per cent, related to union organization; and 15,581, or 8.4 per cent, were due to miscellaneous causes. The number of man-days idle is the best measure of the importance of strikes, because it takes into consideration not only the number of workers involved, but also the duration of the strikes. A comparison of the records here presented shows that the strikes which related to wages and hours resulted in more stoppage of work than those, the major causes of which were questions of union organization, or due to causes included in the miscellaneous group.

Table 22.—Number of Strikes, Number of Workers Involved and Number of Man-Days Idle in Massachusetts in 1938: by Major Causes.

Major Cause of Strike	Number of Strikes	Number of Workers Involved	Number of Man-Days Idle
All Strikes	*123*	*14,941*	*184,914*[1]
Wages and Hours	*41*	*5,749*	*100,652*
Wage increase	18	2,505	27,913
Wage decrease	20	2,941	70,380[1]
Wage increase, hour decrease	3	303	2,359[1]
Union Organization	*60*	*6,169*	*68,681*
Recognition	17	2,582	14,515
Recognition and wages	8	553	10,159
Recognition, wages and hours	15	1,031	10,849[1]
Closed shop	12	1,500	14,114
Violation of agreement	3	232	3,463
Discrimination	4	228	14,807[1]
Collection of union dues	1	43	774
Miscellaneous	*22*	*3,023*	*15,581*
Different unions competing for control	1	75	225
Jurisdiction	3	160	410
Seniority	3	86	549
Other	11	2,569	13,567
Not reported	4	133	830

[1] This total (184,914) includes 19,027 man-days idle as a result of five strikes which began in 1937, and which continued into 1938. This number (19,027) was distributed as follows: two strikes against wage decreases, 6,077; one strike for wage increase and hour decrease, 81; one strike for recognition, wages and hours, 629; and one strike against discrimination, 12,240.

Result of Strikes.—In Table 23 the 123 strikes which began in 1938 are classified by major causes and results. The data presented in this table were tabulated in the Division of Statistics, but the classification of the strikes has been based on information furnished by the U. S. Bureau of Labor Statistics,

whose judgment as to the major causes and results of the strikes has been accepted.[1]

Of the 123 strikes, 48, or 39.0 per cent, resulted in substantial gains to workers; 43, or 34.9 per cent, resulted in partial gains or compromises; 23, or 18.7 per cent, resulted in little or no gains; four, or 3.3 per cent, resulted in settlement of jurisdiction by rival unions or factions; and the results of five strikes, or 4.1 per cent, were not reported. Of the 14,941 workers involved in the 123 strikes, 7,372, or 49.4 per cent, secured substantial gains; 5,429, or 36.3 per cent, secured partial gains or compromises; 1,572, or 10.5 per cent, secured little or no gains; 235, or 1.6 per cent, were involved in strikes which resulted in settlement of jurisdiction; and 333, or 2.2 per cent, were involved in strikes, the results of which were not reported. Of the 184,914 man-days idle, 89,267, or 48.3 per cent, were lost by workers who secured substantial gains; 50,818, or 27.5 per cent, were lost by workers who obtained partial gains or compromises; 42,964, or 23.2 per cent were lost by workers who secured little or no gains; 635, or 0.3 per cent, by workers who were involved in strikes which resulted in settlement of jurisdiction; and 1,230, or 0.7 per cent, by workers who were involved in strikes the results of which were not reported.

Table 23.—Number of Strikes, Number of Workers Involved, and Number of Man-Days Idle in Massachusetts in 1938: by Major Causes and Results.

Major Causes	Results					
	Substantial Gains to Workers	Little or No Gains to Workers	Partial Gains or Compromises	Settlement of Jurisdiction of Rival Unions or Factions	Not Reported	Totals
			Number of Strikes			
Wages and hours	16	6	18	–	1	41
Union organization	26	14	20	–	–	60
Other causes	6	3	5	4	–	18
Not reported	–	–	–	–	4	4
Totals	*48*	*23*	*43*	*4*	*5*	*123*
			Number of Workers Involved			
Wages and hours	1,641	897	3,011	–	200	5,749
Union organization	3,590	586	1,993	–	–	6,169
Other causes	2,141	89	425	235	–	2,890
Not reported	–	–	–	–	133	133
Totals	*7,372*	*1,572*	*5,429*	*235*	*333*	*14,941*
			Number of Man-days Idle			
Wages and hours	48,042	22,106	30,104	–	400	100,652
Union organization	29,652	20,219	18,810	–	–	68,681
Other causes	11,573	639	1,904	635	–	14,751
Not reported	–	–	–	–	830	830
Totals	*89,267*	*42,964*	*50,818*	*635*	*1,230*	*184,914*[1]

[1] This total (184,914) includes 19,027 man-days idle as a result of five strikes which began in 1937 and which continued into 1938. This number (19,027) was distributed as follows: Wages and hours (three strikes), 6,158; union recognition (two strikes), 12,869.

Information Service

Special Inquiries.—The answering of requests for information relative to the industries of the commonwealth, rates of wages, hours of labor and conditions of employment is an important part of the work of the division. A record of such inquiries is kept each year, and the number which required special attention in 1938, other than merely the sending of a marked copy of a printed or mimeographed report, was 972, of which number 232 were of such a nature as to require the making of special tabulations of information on file in the division, and 740 of which were answered directly from the reference library. There has been a continuous increase in the demand for information during

[1] For a discussion with reference to classification of strikes by major causes and results, see *U. S. Labor Bulletin No. 651*, Appendix II, pages 166-168.

recent years, the number of special inquiries having increased from 482 in 1934, to 749 in 1935, 892 in 1936, 898 in 1937 and 972 in 1938.

Of the 232 inquiries involving the special tabulation of information not published in reports of the division, the following were the most important:

Compilation of statistics relative to textile industry in Massachusetts, 1926-1938[1]
Survey of the tourist trade in Massachusetts in 1938[1]
Special inquiry relative to damages caused by the hurricane and floods in Massachusetts in September, 1938[1]
Compilation of statistics of strikes in Massachusetts in 1938[1]
Recent industrial trends in Massachusetts:
All classes of employment, combined
In principal manufacturing industries and cities
Statistics of manufactures:
In principal industries and cities
Lists of establishments in various industries and localities
Rates of wages in various industries and occupations
Discrimination against older workers:
Material for use at conference with New York State Committee
Numerous requests for copies of Massachusetts Act (1937) and of the report by this department
Employment and unemployment in Massachusetts and several cities in 1938

The Reference Library—The department maintains a reference library which receives and files many pamphlets and books on various phases of labor and industry issued by federal bureaus, other state labor departments, trade unions, industrial organizations, and the International Labor Office. A file of the current state legislative documents is kept and those of interest to the department are referred to the officials of the department. The library is, primarily, for the use of members of the department but is also used extensively by the general public, including many students from nearby colleges. Through the inter-library loans with the State Library, Boston Public Library, and the libraries of Harvard University and Massachusetts Institute of Technology material is readily available on many subjects. The library staff consists of a librarian, an assistant, and temporary clerical help provided by the National Youth Administration.

The library now includes more than 4,000 bound volumes and much additional material in the form of bulletins and mimeographed reports. There are received currently 21 quarterlies, 204 monthlies, 37 weeklies and 14 daily newspapers. Clippings from the newspapers and some periodicals are referred to the officials of the department and others are kept for reference purposes.

The increased use of the library is indicated by an increase in the number and variety of inquiries answered. Subjects of special interest to inquirers during the past year were: unemployment; unemployment compensation; cost of living; employment and minimum wages of women and minors in industry; Federal Labor Standards Act; National and State Labor Relations Boards; Social Security laws and regulations; labor organizations; strikes and lockouts; industrial accidents; homework; material for economic surveys of cities and towns in the commonwealth; Federal Public Contract Act; migration of industries; discrimination in employment on account of age; safeguards for machinery; occupational hazards; state and federal labor laws; and court decisions affecting labor.

Departmental Statistical Project—National Youth Administration

The National Youth Administration Project providing for the employment of young persons, 18 to 25 years of age, on statistical and clerical work in the department, which was started in April, 1936, has been continued, without interruption, and with some increase in the number employed. This project was set up as a general departmental project, because none of the divisions of

[1]For further information, see "Special Investigations", on pages 62-70.

the department could furnish employment for a sufficiently large number of young persons to justify setting up a separate project in each division. Arrangements were made for the transfer of these young persons from one division to another as occasion might require. The general supervision of the project was assigned to the Director of Statistics.

In 1938 the regulations provided for the employment of clerks, each working fifty-five hours per month, and a supervisor for not less than 132 hours per month. The N. Y. A. also provided "Related Training Courses" for the young people. The fall courses began October 3, to continue for a period of 20 weeks. Each young person was required to take at least one two-hour course, unless attending night school. Those who attended the courses were credited with 2 hours and worked 25½ hours per pay-roll period. In 1938 there were two pay-roll periods per month. The average number of young persons employed was thirty-five. The total number of hours worked during the year by these young people, including the supervisor, was 24,300½ and the total amount of the pay rolls was $11,274.94, or an average of 46.4 cents per hour.

There were some changes in the personnel during the year. Thirteen secured positions in private employment, nine were transferred to other projects, seven were dropped because of tenure limitations, six left for such reasons as marriage, illness, etc., and one secured W.P.A. work.

Those employed were engaged, for the most part, in the following classes of work:

Division of Statistics: Clerical work, including transcribing statistical records; stencil cutting, typing and operating office appliances.

Minimum Wage Commission: Operating calculator, mimeograph, stenography, typing and filing.

Division of Industrial Hygiene: Listing of references, preparation of library card system, stenography, typing and statistics.

Board of Conciliation and Arbitration: Listing and filing reports of strikes, labor difficulties, and stenography.

Research Library: General Library work, stenography and typing.

Switchboard: Relieving regular operator at various times.

The employment of these young people has not resulted in the displacement of any of the regular employees in the department. In addition to the service rendered, the training and experience which these young persons have received has amply justified the expenditure of the funds made available by the National Youth Administration. The fact that 13 of those assigned to the work have secured positions in private employment is evidence of the value of the practical training which they have received while employed in this department.

STATISTICS OF MANUFACTURES, 1937

Introductory

The census of manufactures in Massachusetts for the year 1937 was taken in 1938 by the Division of Statistics in co-operation with the United States Bureau of the Census. The law providing for the taking of the "Annual Census of Manufactures in Massachusetts" (General Laws, chapter 149, sections 169-173) provides, in Section 171 that

> The commissioner (of the Department of Labor and Industries) may suspend the operation of this section, in years when the United States takes a census of manufactures in Massachusets, to such degree as may be necessary in order to facilitate co-operation between said department and the federal census authorities in the collection and compilation of the statistics of Massachusetts manufactures in such census years and the avoidance of needless duplication of labor and expense.

In taking the census of manufactures for 1937 as in former years (except 1935) when a biennial federal census for the country was taken, the co-oper-

ative agreement between the Federal Bureau of the Census and the Massachusetts Department of Labor and Industries provided that all of the annual reports from manufacturers in Massachusetts should be collected by the Division of Statistics under the supervision of the Director of Statistics.

The schedules and envelopes used were furnished by the Census Bureau and the franking privilege was extended to the Division of Statistics in connection with the work. In accordance with the agreement the original reports filed by manufacturers were forwarded to the Bureau of the Census and copies were retained by the division of Statistics for purposes of tabulation[1] and for permanent record.

The total number of manufacturing establishments in operation in 1937 was 8,718, including 126 publishing establishments which did no printing, and excluding establishments in which the value of products manufactured during the year was less than $5,000. The total value of products manufactured in these establishments was $2,623,115,728; the cost of materials and stock used in manufacture was $1,338,771,937, and the difference between these amounts ($1,284,343,791) represents the *value added* by the various manufacturing processes. The average number of wage-earners employed in the 8,718 establishments was 498,602, and the total amount of wages paid during the year was $550,246,370.[2]

The totals for 1937, after eliminating data for the 126 publishing establishments noted above which were omitted in the 1936 census, show increases over the corresponding totals for 1936 as follows: value of stock and materials used, 8.7 per cent; amount of wages paid during the year, 8.7 per cent; average number of wage-earners employed, 3.6 per cent; and value of products, 7.1 per cent.

Although there was a nominal gain of 33 in the number of establishments when the publishing establishments which did no printing were included, there was actually a net loss of 93 establishments (excluding such publishing establishments) when compared with the number in operation in 1936.

The upward trend in manufactures which began in the latter half of 1932 ended abruptly in the last quarter of 1937, and at the close of the year manufacturing activities had declined to a point which had been reached in the upward trend about December, 1935.

Increases in the dollar value of production, as compared with 1936, occurred in each of the principal industries in the State except the manufacture of silk and rayon goods; and knit goods, in which industries the value of production decreased 3.1 per cent and 8.4 per cent, respectively.

There was an increase in the average number of wage-earners employed in each of the major industries except woolen and worsted goods; leather, (tanned, curried and finished); and knit goods, in which industries the average number of wage-earners employed decreased 0.9 per cent, 4.2 per cent, and 5.2 per cent, respectively. There were increases in the amounts of wages paid in all the principal industries except leather, tanned, curried and finished; boot and shoe cut stock and findings; and knit goods, in which industries the amounts of wages paid decreased 2.2 per cent, 0.4 per cent, and 4.0 per cent, respectively.

Increases in the value of products manufactured in 1937 over 1936 were reported in 28 of the 39 cities, and increases in the numbers of wage-earners employed were reported in 29 of the 39 cities, but in four of the ten cities in which there was a decrease in the number of wage-earners employed, there was an increase in the total amount of wages paid during the year.

The results of the tabulation of manufacturers' returns, by municipalities and by principal industries in each municipality, were issued in the form of press announcements, as follows:

[1]The data here presented were tabulated by the Division of Statistics. In some cases the totals published by the Division of Statistics and the Federal Bureau of the Census differed somewhat. Such difference were due, for the most part, to inclusion in the tabulations by the Division of Statistics of reports for some establishments which were not included in the tabulations by the Census Bureau, but these differences in totals were relatively unimportant.

[2]See Table 24 on page 74.

Nos. 1-39. *Individual Cities.* A separate press notice for each of the 39 cities containing data, by important industries, in 1937 with comparable data for specified industries for certain prior years.

No. 40. *Summary by Cities and Towns.* Totals only for each city and town, 1937.

No. 41. *General Summary for the State.* Principal data by years, 1927 to 1937.

No. 42. *Metropolitan Boston.* Principal data for the years 1927 to 1937.

No. 43. *Summary by Industries.* Principal data for leading industries, 1937, with comparable data for the years 1927 to 1937.

Nos. 44-50. *Special Towns.* A separate press notice for each of the following important industrial towns: Adams, Athol, Framingham, Hudson, Norwood, Watertown, and West Springfield.

No. 51. *Counties.* Principal data for counties, 1937.

Summary of Principal Data, 1913 to 1937

All Industries, Combined. In order to show the general industrial trends in Massachusetts for a series of years, the principal data for all manufacturing industries, combined, for the years 1913 to 1937, inclusive, are presented in Table 24. In making comparisons for the several years of the money values presented in this summary, due allowance should be made for price fluctuations from year to year. The *values* of products manufactured do not necessarily represent the relative *volume* of goods produced in the several years.

The State. In Table 25 the principal data for 1937 are presented for each of the industries in which there were three or more establishments represented and for which data can be shown without disclosing the operations of individual establishments.

Table 24.—Principal Data Relative to Manufactures in Massachusetts. All Industries Combined: By Years, 1913-1937, Inclusive.

Years	Number of Establishments	Capital Invested	Value of Stock and Materials Used	Amount of Wages Paid During the Year	Average Number of Wage-earners Employed	Value of Products	Value added by Manufacture
1913	8,405	$1,345,461,875	$961,778,476	$351,299,706	616,927	$1,658,728,363	$696,949,887
1914	12,013 [1]	1,548,960,733	931,383,793	341,309,517	606,698	1,641,373,047	709,989,254
1915	9,707	1,550,080,995	959,662,457	346,243,472	596,348	1,692,445,366	732,782,909
1916	9,829	1,791,050,092	1,354,433,202	447,957,731	682,621	2,349,933,003	995,499,801
1917	9,865	2,239,848,630	1,782,440,354	537,144,629	708,121	3,020,557,545	1,238,117,191
1918	9,695	2,510,730,295	2,249,822,722	679,401,273	719,210	3,851,346,215	1,601,523,493
1919	11,906 [1]	2,962,108,527	2,260,713,036	766,623,337	713,836	4,011,181,532	1,750,468,496
1920	10,262	2,987,620,867	2,489,237,446	891,176,822	695,832	4,370,276,822	1,881,039,376
1921	9,994 [1]	[2]	1,441,035,230	641,360,936	579,071	2,849,413,516	1,408,378,286
1922	10,056	2,822,014,756	1,512,510,105	678,073,968	612,682	3,002,625,958	1,490,115,853
1923	10,519 [1]	[2]	1,835,218,349	799,363,111	667,443	3,570,543,265	1,735,324,916
1924	10,174	2,853,590,206	1,629,342,134	711,812,104	589,364	3,126,137,145	1,496,795,011
1925	10,027 [1]	[2]	1,794,643,051	716,155,593	591,438	3,426,617,326	1,631,974,275
1926	9,903	2,819,189,700	1,790,611,294	738,208,510	602,343	3,419,814,877	1,629,203,583
1927	10,037 [1]	[2]	1,678,812,411	705,929,549	578,068	3,317,851,888	1,639,039,477
1928	9,971	2,735,070,138	1,663,155,564	670,063,291	540,927	3,224,227,651	1,561,072,087
1929	9,872 [1]	[2]	1,681,432,788	694,805,312	557,494	3,392,162,237	1,710,729,449
1930	9,586	2,483,589,920	1,333,317,227	573,838,044	481,449	2,676,387,256	1,343,070,029
1931	9,305 [1]	[2]	1,015,093,739	474,189,202	434,441	2,157,450,449	1,142,356,710
1932	8,778	1,888,244,721	718,347,675	334,358,550	350,521	1,521,752,939	803,405,264
1933	8,145 [1]	[2]	800,611,332	354,523,624	398,592	1,668,733,387	868,122,055
1934	8,336	1,825,540,470	924,075,172	408,617,489	423,933	1,855,598,291	931,523,119
1935	8,517 [1]	[2]	1,078,869,946	448,326,676	445,519	2,103,691,437	1,024,821,491
1936	8,685	1,803,555,232	1,230,882,709	514,599,251	481,432	2,437,520,795	1,206,638,086
1937	8,718 [1]	[2]	1,338,771,937	559,246,370	498,602	2,623,115,728	1,284,343,791

[1] The Census of Manufactures for the years 1914, 1919, 1921, 1923, 1925, 1927, 1929, 1931, 1933, 1935 and 1937 included certain publishing establishments not canvassed in the other years specified, and data for these years, therefore, are not strictly comparable with corresponding data for the other years specified.

[2] Not called for on the questionnaire.

Table 25.—Principal Data Relative to Manufactures in Massachusetts in 1937: By Industries.

Industries (Arranged alphabetically)	Number of Establishments	Value of Stock and Materials Used [1]	Amount of Wages Paid During the Year	Average Number of Wage-earners Employed	Value of Products
All Industries	*8,718*	*$1,338,771,937*	*$559,246,370*	*498,602*	*$2,623,115,728*
Aluminum products	4	98,055	32,371	31	198,779
Artificial leather	8	2,249,521	459,298	376	3,963,471
Awnings, tents, sails, and canvas covers	63	591,894	295,577	266	1,369,597
Bags, paper	6	1,912,601	345,936	340	2,827,520
Baskets and rattan and willow ware	3	91,451	52,164	60	205,562
Belting and packing, leather	24	2,397,242	595,565	446	5,166,538
Beverages, non-alcoholic	145	3,363,315	1,060,175	951	9,031,160
Blacking, stains, and dressings	59	2,182,480	520,373	435	4,723,535
Bolts, nuts, washers, and rivets	9	821,449	602,504	537	2,300,074
Bookbinding and blank-book making	80	3,206,900	3,593,999	3,043	10,526,502
Boot and shoe cut stock and findings, not made in boot and shoe factories	281	36,507,240	7,376,072	7,782	53,835,759
Boots and shoes, other than rubber	291	81,138,368	41,114,626	46,604	150,999,351
Boots and shoes, rubber	4	8,785,735	6,815,775	6,034	22,761,637
Boxes, paper	111	16,528,658	5,056,958	5,118	28,737,290
Boxes, wooden, except cigar boxes	48	2,338,917	1,218,075	1,267	4,819,007
Bread and other bakery products	1,078	40,786,708	16,320,671	13,083	79,458,398
Brooms	8	118,165	68,339	74	239,889
Brushes, other than rubber	21	2,169,376	745,172	793	4,974,584
Butter	5	337,532	24,693	18	408,011
Buttons	11	495,704	340,121	483	1,042,118
Canned and preserved fish	14	2,910,732	769,294	841	4,656,625
Canned and preserved fruits and vegetables	32	6,451,115	689,736	718	9,868,145
Card cutting and designing	6	804,551	338,771	268	1,769,459
Carpets and rugs, rag	5	71,377	20,928	30	128,132
Carpets and rugs, wool, other than rag	5	4,304,222	1,905,730	1,794	8,699,886
Carriages and sleds, children's	11	2,507,578	1,413,668	1,386	5,063,494
Caskets, coffins, burial cases, etc.	19	1,048,400	470,421	405	2,440,967
Cheese	7	555,595	70,338	60	851,804
Chemicals	20	9,892,626	3,617,883	2,734	21,022,992
Cigars	29	784,237	276,192	352	1,295,549
Clay products (other than pottery)	14	286,838	364,048	355	906,762
Cleaning and polishing preparations	35	524,737	91,682	89	1,087,195
Clothing, men's, (except work)	180	16,953,164	7,301,843	7,608	31,918,866
Clothing, women's	296	22,447,605	8,838,320	11,026	42,416,678
Clothing, work (including work shirts), men's	33	3,853,325	1,225,338	1,494	6,256,960
Compressed and liquefied gases	9	493,370	233,534	163	1,772,456
Concrete products	52	912,608	475,868	392	2,286,139
Condensed and evaporated milk	6	1,244,533	77,850	45	1,600,540
Confectionery	106	17,403,964	5,230,466	6,392	30,679,485
Cooperage	14	940,732	444,252	472	1,725,457
Cordage and twine	14	5,027,053	1,602,003	1,572	9,963,043
Corsets and allied garments	9	912,028	368,994	530	1,708,706
Cotton goods	96	54,475,099	36,226,586	42,562	110,005,566
Cotton small wares	43	5,123,056	2,424,455	2,754	10,286,734
Cutlery (not including silver and plated cutlery) and edge tools	47	3,034,686	2,893,336	2,400	14,170,076
Dentists' equipment and supplies	5	138,332	79,054	103	358,302
Doors and shutters, metal	5	174,200	109,525	89	418,166
Druggists' preparations, including patent medicines and compounds	60	5,063,642	920,428	971	15,600,561
Dyeing and finishing textiles	59	27,231,992	13,705,564	12,250	51,555,625
Electrical machinery, apparatus, and supplies	74	51,873,522	37,601,286	24,642	148,798,048
Electroplating	41	276,804	496,151	445	1,256,164

[1] Value of stock and materials used does not include amounts paid for work done on contract on materials supplied by the reporting establishments.

Table 25.—Principal Data Relative to Manufactures in Massachusetts in 1937: By Industries.—Continued

Industries (Arranged alphabetically)	Number of Establishments	Value of Stock and Materials Used	Amount of Wages Paid During the Year	Average Number of Wage-earners Employed	Value of Products
Elevators and elevator equipment	8	$408,943	$247,026	161	$1,039,859
Embroideries, trimmings and stamped art goods	29	1,211,728	386,162	461	2,123,713
Engines, turbines, water wheels, etc.	4	141,397	114,427	88	358,801
Engraving (other than steel, copperplate, or wood), chasing, etc.	26	172,417	307,427	246	763,428
Engraving, steel, copperplate, and wood and plate printing	19	574,651	453,838	445	1,731,355
Envelopes	15	4,819,285	1,935,145	1,711	9,386,340
Feeds, prepared, for animals and fowls	16	6,861,529	376,791	323	8,620,394
Felt goods, wool, hair or jute	11	3,627,424	973,971	801	5,956,498
Fertilizers	10	2,637,248	278,686	281	3,405,255
Flavoring extracts and flavoring sirups	24	1,463,113	203,485	195	2,759,490
Flour and other grain-mill products	6	1,218,141	42,433	36	1,293,191
Food preparations	62	5,038,840	517,029	582	8,229,161
Forgings, iron and steel	12	3,495,613	1,901,083	1,216	6,976,477
Foundry and machine-shop products	378	31,285,298	26,014,518	17,611	88,706,980
Fur goods	19	331,523	155,502	102	655,150
Furnishing goods, men's	28	3,405,624	1,033,454	1,469	5,725,330
Furniture, including store and office fixtures	214	13,077,081	8,413,020	7,818	29,654,139
Galvanizing and other coating	7	124,586	96,037	76	343,222
Glue and gelatin	11	5,704,613	1,285,374	992	9,684,078
Grease and tallow	12	3,574,052	547,259	413	5,368,169
Hand stamps and stencils and brands	25	169,246	159,246	142	586,227
Hardware	29	2,294,675	1,293,307	1,218	5,383,000
Hats and caps, except felt and straw, men's	17	158,273	75,149	85	398,571
Hats, fur-felt	6	1,478,917	435,969	525	2,539,672
Heating and cooking apparatus, except electric[1]	56	8,109,426	5,865,790	4,639	22,732,860
House-furnishing goods	79	9,784,497	1,464,225	2,268	13,201,493
Ice cream	116	7,322,393	1,029,665	826	13,415,045
Ice, manufactured	56	910,411	624,275	422	3,971,323
Instruments, professional and scientific	22	1,449,498	1,010,748	829	5,804,323
Jewelers' findings and materials	16	6,559,365	1,041,077	724	9,060,186
Jewelry	80	5,131,009	4,243,511	3,972	14,489,172
Jewelry and instrument cases	7	569,844	468,233	507	1,610,074
Knit goods	82	16,926,172	7,856,750	9,256	31,821,173
Lapidary work	4	28,491	29,273	27	126,526
Lasts and related products	20	556,833	743,488	593	1,898,483
Leather goods	38	1,141,925	537,430	718	2,343,414
Leather: Tanned, curried, and finished	94	47,881,198	12,974,567	10,228	70,786,960
Lighting equipment	15	792,682	466,095	420	1,969,185
Lime	6	520,209	361,364	308	1,304,952
Liquors, malt	15	4,706,011	1,851,578	1,112	11,765,073
Lithographing	12	1,756,006	1,287,817	885	5,002,556
Lumber and timber products	28	725,100	407,104	469	1,665,520
Macaroni, spaghetti, vermicelli, etc.	8	741,945	424,044	151	1,045,034
Machine-tool accessories and precision tools	45	4,438,378	5,670,413	4,170	18,790,572
Machine tools	29	6,413,942	5,539,469	3,242	22,268,990
Marble, granite, slate, and other stone products	108	1,287,295	1,564,145	1,110	4,431,513
Mattresses and bed springs	68	3,347,417	849,281	856	5,753,699
Meat packing, wholesale	26	47,269,052	3,576,944	2,463	53,893,559
Millinery	33	1,662,159	948,817	1,163	3,320,060
Minerals and earths, ground	7	1,116,587	598,694	487	2,534,195
Mirror and picture frames	16	176,901	105,929	109	421,342
Mirrors and other glass products	17	331,472	291,096	219	939,261
Miscellaneous articles	40	1,524,411	810,615	1,120	3,542,437
Models and patterns, not including paper patterns	52	204,038	695,183	435	1,579,112
Motor-vehicle bodies and motor-vehicle parts	27	1,196,022	655,013	572	2,556,210

[1] Classified prior to 1937 as stoves and ranges (other than electric) and warm-air furnaces and steam and hot-water heating apparatus and steam fittings.

Table 25.—Principal Data Relative to Manufactures in Massachusetts in 1937: By Industries—Concluded

Industries (Arranged alphabetically)	Number of Establishments	Value of Stock and Materials Used	Amount of Wages Paid During the Year	Average Number of Wage-earners Employed	Value of Products
Musical instruments and parts, except piano and organ	7	$181,218	$251,551	250	$659,436
Nails, spikes, etc., not made in wire mills	15	2,078,416	861,037	844	4,447,742
Nonferrous-metal alloys and products, except aluminum	68	5,860,788	1,916,135	1,472	11,581,771
Paints, pigments, and varnishes	48	6,317,371	934,169	780	11,529,386
Paper and wood pulp	66	39,015,249	13,048,116	10,499	68,061,275
Paper goods	79	19,225,829	6,029,440	5,513	36,717,988
Paving materials	16	1,179,386	296,890	164	2,091,442
Perfumes, cosmetics, and other toilet preparations	15	307,205	79,791	81	748,036
Photo-engraving	43	247,203	926,039	421	2,290,759
Planing-mill products	109	3,607,067	1,716,399	1,405	7,173,213
Plumbers' supplies	17	1,929,256	891,134	776	4,852,870
Pocketbooks, purses, and card-cases	21	4,029,411	1,509,350	2,208	7,609,936
Printing and publishing	872	24,312,620	23,459,897	14,752	106,604,044
Pumps (hand and power) and pumping equipment	15	5,888,583	2,541,950	1,697	12,626,106
Radio apparatus and phonographs	10	6,413,928	4,069,338	4,396	16,035,964
Refrigerators and ice-making apparatus	9	168,433	65,945	51	326,537
Rubber goods, including rubber tires and inner tubes	58	30,425,758	8,893,207	7,661	53,666,432
Saddlery, harness, and whips	4	77,553	38,284	47	155,930
Sausage and sausage casings	68	6,951,395	824,371	688	9,206,209
Screw-machine products and wood screws	29	2,632,745	2,309,906	1,692	7,731,154
Sheet-metal work	79	2,408,132	1,163,333	877	5,179,136
Ship and boat building, steel and wooden	36	8,593,454	7,513,175	4,610	18,839,662
Shirts and nightwear, men's	11	3,797,451	1,863,135	2,656	7,916,695
Signs and advertising novelties	52	829,772	600,116	539	2,216,787
Silk and rayon goods	32	24,670,363	11,007,096	12,648	41,367,073
Silverware and plated ware	28	2,895,536	1,989,846	1,634	7,787,950
Smelting and refining, nonferrous metals, not from the ore	5	1,355,033	56,109	46	1,587,836
Sporting and athletic goods	15	4,180,539	2,241,288	1,779	8,382,534
Stamped and pressed metal products, enameling, etc.	52	5,586,429	3,383,505	2,849	14,354,543
Statuary and art goods	6	56,654	59,609	46	194,556
Steam and other packing	7	469,421	142,769	124	900,390
Stereotyping and electrotyping	14	144,596	404,268	217	1,196,147
Structural and ornamental metal work	58	2,726,748	891,383	619	5,031,359
Surgical and orthopedic appliances	29	1,392,062	356,011	368	2,537,940
Suspenders, garters, and other elastic woven goods	7	863,753	256,636	351	1,474,758
Synthetic-resin, cellulose-plastic, etc.	12	2,909,056	2,065,639	1,548	6,660,331
Tanning materials and natural dyestuffs	24	2,587,976	279,342	214	3,747,445
Textile machinery and parts	101	13,779,963	14,006,854	10,651	43,967,853
Tin cans and other tinware	9	1,476,709	422,787	409	2,756,548
Tools, not including edge tools, machine tools, files, or saws	44	2,966,558	2,237,907	1,831	7,652,966
Toys, games, and playground equipment	18	2,682,017	1,257,267	1,798	6,534,475
Trunks, suitcases, and bags	17	613,374	239,909	270	1,243,512
Umbrellas, parasols, and canes	5	315,938	85,827	116	528,026
Vinegar and cider	10	309,051	64,890	71	553,780
Window and door screens and weather strip	15	190,483	76,746	75	349,599
Window shades and fixtures	28	711,015	128,233	120	1,159,289
Wire drawn from purchased rods	13	9,468,619	6,990,914	4,561	23,057,218
Wirework	27	2,545,656	1,290,170	1,132	5,334,970
Wood turned and shaped and other wooden goods	43	1,675,059	1,083,973	1,121	3,801,927
Woolen and worsted goods	119	147,336,458	49,804,314	47,994	232,513,060
Wool scouring	11	976,177	768,196	654	2,563,585
Wool shoddy	52	6,759,510	1,379,782	1,399	9,960,862
All other industries [1]	355	188,951,021	46,608,413	35,898	323,751,520

[1] Includes data for all industries represented by less than three establishments and also the following industries: soap, sugar refining, and motor vehicles, not including motorcycles, data for which cannot be given separately without disclosing the operations of individual establishments.

Cities and Towns. Principal data relative to manufactures in 1937 in each of the 39 cities and 316 towns of the Commonwealth, with totals for the State, are presented in Table 26.

The total number of manufacturing establishments in the 39 cities in Massachusetts, considered as a group, was 7,002, and the total number of manufacturing establishments in the 316 towns was 1,716. The total value of all products manufactured in the 39 cities amounted to $2,027,048,629, or 77.3 per cent of the aggregate value ($2,623,115,728) of all products manufactured in the Commonwealth in that year; the value of stock and materials used in manufacture was $1,034,049,691, and the difference between these amounts ($992,998,938) represents the value added by the various manufacturing processes. The total value of all products manufactured in the 316 towns was $596,067,099, or 22.7 per cent of the aggregate value of products; the value of stock and materials used in manufacture was $304,722,246, and the difference between these amounts ($291,344,853) represents the value added by the various manufacturing processes.

The average number of wage-earners employed in the 7,002 establishments in the 39 cities during the year was 375,903, or 75.4 per cent of the average number of wage-earners (498,602) employed in all manufacturing establishments in the State, and the total amount paid in wages was $424,522,206. The average number of wage-earners employed in the 1,716 establishments in the 316 towns was 122,699, or 24.6 per cent of the average number of wage-earners employed in all manufacturing establishments in the State, and the total amount paid in wages was $134,724,164.

As a manufacturing center, Boston ranked first among the cities of the Commonwealth, and the value of products manufactured in that city in 1937 was $423,318,101, constituting 16.1 per cent of the aggregate value of all products manufactured in the entire State during the year.

In order of importance, based on the value of products manufactured in 1937, the ten leading manufacturing cities were: Boston, Worcester, Cambridge, Lawrence, Springfield, Lynn, Somerville, New Bedford, Fall River, and Lowell. The ten leading towns were: Watertown, Southbridge, Norwood, Braintree, Framingham, West Springfield, Walpole, Andover, Adams, and Athol.

Metropolitan Boston. As defined for purposes of the annual census of manufactures in Massachusetts, Metropolitan Boston comprises 14 cities and 29 towns included within a radius of about 15 miles from the State House in Boston. Within this area were located, in 1937, 4,240 manufacturing establishments, in which products valued at $1,038,966,525 were manufactured. The average number of wage-earners employed in these establishments during the year was 149,560, and the total amount paid in wages was $182,531,644. The number of manufacturing establishments in Metropolitan Boston in 1937 constituted 48.6 per cent of the total number (8,718) in the entire State; the value of products manufactured constituted 39.6 per cent of the total value of all products manufactured in the State; and the number of wage-earners was 30.0 per cent of the total number employed in all manufacturing establishments in the State.

Principal data relative to manufactures in Metropolitan Boston for the years 1927 to 1937, inclusive, are presented in Table 27; and data for 1936 for each of the 14 cities and 29 towns are presented in Table 28.

Counties. Principal data having reference to manufactures in each of the counties of the state in 1937 are presented in Table 29. Based on the value of products, Middlesex County led with $531,458,104 or 20.3 per cent of the total ($2,623,115,728) for the State. Next in the order named, on the basis of product values, were Suffolk, Worcester, Essex, Hampden, and Bristol Counties, — while on the basis of wage-earners, the important counties succeeded each other, as follows: Worcester, Middlesex, Essex, Bristol, Suffolk, and Hampden. The average number of wage-earners in these counties in 1937 ranged from 46,757 in Hampden County to 88,394 in Worcester County.

Table 26.—Principal Data Relative to Manufactures in Massachusetts in 1937: By Cities and Towns.—Continued

Cities and Towns[1] (Cities in capital letters)	Number of Establishments	Value of Stock and Materials Used	Amount of Wages Paid During the Year	Average Number of Wage-earners Employed	Value of Products
The State	*8,718*	*$1,338,771,937*	*$559,246,370*	*498,602*	*$2,623,115,728*
39 Cities	*7,002*	*1,034,049,691*	*424,522,206*	*375,903*	*2,027,048,629*
316 Towns	*1,716*	*304,722,246*	*134,724,164*	*122,699*	*596,067,099*
Abington	9	1,276,921	461,218	497	2,419,734
Acton	7	627,071	190,358	169	1,020,546
Adams	21	4,386,261	3,017,286	3,398	10,739,843
Agawam	4	397,083	230,602	209	753,206
Amesbury	25	4,620,687	2,267,252	2,300	9,462,455
Amherst	8	288,305	107,568	146	542,051
Andover	16	8,663,249	3,327,826	3,101	15,531,685
Arlington	23	391,313	160,772	122	816,418
Ashburnham	7	389,357	325,157	348	1,057,454
Athol	32	3,927,673	2,608,191	2,437	10,705,416
ATTLEBORO	113	17,932,807	7,212,550	6,258	33,097,883
Auburn	10	1,015,859	542,589	437	2,508,143
Ayer	7	39,237	53,869	45	150,060
Barnstable	7	90,715	60,718	45	238,682
Belmont	7	39,916	24,802	23	123,152
BEVERLY	34	2,755,605	4,631,379	3,165	9,608,644
Billerica	6	2,588,897	710,996	641	3,851,830
Blackstone	5	55,101	29,269	28	100,646
BOSTON	2,311	213,699,471	71,363,364	59,365	423,318,101
Braintree	16	13,985,815	1,152,204	950	17,840,621
Bridgewater	10	2,603,779	656,684	615	4,196,693
BROCKTON	213	19,982,162	8,760,222	8,708	37,847,637
Brookline	23	561,505	461,357	457	1,793,645
CAMBRIDGE	376	65,322,820	20,875,405	18,166	138,350,392
Canton	18	4,390,766	1,352,271	1,259	7,473,089
Chelmsford	8	459,192	778,934	671	2,159,736
CHELSEA	105	11,443,202	4,730,333	4,430	22,129,514
Chester	3	146,461	124,449	92	522,929
CHICOPEE	52	33,289,213	10,833,721	8,231	59,960,526
Clinton	26	4,404,567	2,085,313	2,197	8,318,596
Concord	13	285,474	229,829	196	727,484
Danvers	20	2,365,685	1,039,599	1,001	4,142,953
Dedham	8	283,128	149,301	107	693,394
Deerfield	4	508,421	30,376	31	661,677
Dudley	10	3,348,773	1,411,037	1,342	5,417,048
Easthampton	16	2,898,353	1,854,364	1,865	6,634,108
Easton	8	846,719	398,201	404	1,880,277
EVERETT	110	33,950,025	6,340,858	4,773	53,013,941
Falmouth	4	30,917	23,482	17	92,735
FALL RIVER	252	37,405,956	18,950,567	23,584	69,644,153
FITCHBURG	99	23,798,720	8,255,458	7,806	39,138,858
Framingham	36	8,345,625	3,520,639	2,952	17,739,527
Franklin	18	3,374,220	1,292,856	1,064	5,787,470
Freetown	4	243,529	106,793	150	460,866
GARDNER	66	9,227,613	6,158,230	5,665	23,089,013
GLOUCESTER	51	5,016,578	1,710,619	1,775	8,641,835
Grafton	6	2,362,202	1,079,039	1,163	4,355,223
Great Barrington	11	1,223,616	609,519	610	2,709,026
Greenfield	34	2,201,918	2,120,367	1,764	7,401,635
HAVERHILL	198	17,461,476	6,952,764	7,733	30,690,333
Holbrook	6	1,038,986	315,133	282	1,792,197
HOLYOKE	146	27,932,308	12,389,338	11,893	54,660,994
Hudson	19	2,261,404	1,276,342	1,159	4,850,828
Ipswich	8	619,095	433,510	576	1,309,305
LAWRENCE	158	71,659,465	26,026,995	25,737	115,567,223
Leicester	10	1,095,769	657,859	750	2,065,740
LEOMINSTER	68	7,479,956	4,443,448	4,905	17,284,403
LOWELL	206	36,026,669	14,386,111	16,380	63,754,003
LYNN	289	30,628,099	21,416,945	15,721	86,893,553
MALDEN	109	14,186,308	4,198,084	4,403	24,001,190
Mansfield	16	2,433,796	733,038	618	4,276,122
Marblehead	13	344,285	199,385	223	664,793
MARLBOROUGH	30	3,519,706	2,093,407	2,301	7,218,496
MEDFORD	51	4,209,264	1,240,775	1,066	7,326,444
Medway	5	569,027	372,490	375	1,336,405
MELROSE	20	1,504,174	372,708	377	2,463,928
Merrimac	3	235,132	163,884	163	567,088
Methuen	24	6,916,888	1,505,409	1,817	9,497,053
Middleborough	21	3,467,551	1,159,972	1,242	6,296,735
Milford	28	4,175,236	1,612,325	1,833	6,670,695
Millbury	24	4,797,593	1,734,996	1,443	8,144,758
Milton	7	177,166	75,897	60	410,682
Montague	15	1,467,420	951,431	923	2,776,306
Natick	22	2,129,763	848,216	817	4,252,117
Needham	30	1,438,204	458,531	546	2,940,444
NEW BEDFORD	201	40,302,906	23,406,791	26,471	79,392,489
NEWBURYPORT	33	2,698,550	1,453,848	1,523	6,197,637
NEWTON	58	5,936,670	3,247,172	3,276	14,157,147
NORTH ADAMS	43	10,790,067	5,551,122	5,426	21,297,131

Table 26.—Principal Data Relative to Manufactures in Massachusetts in 1937: By Cities and Towns.

Cities and Towns[1] (Cities in capital letters)	Number of Establishments	Value of Stock and Materials Used	Amount of Wages Paid During the Year	Average Number of Wage-earners Employed	Value of Products
North Andover	9	$2,061,698	$1,266,223	1,183	$3,998,250
North Attleborough	61	3,085,100	2,075,323	2,034	7,542,009
North Brookfield	4	849,278	414,470	444	1,516,669
NORTHAMPTON	41	3,497,214	1,850,490	1,654	7,874,583
Norton	8	442,754	444,844	479	1,236,581
Norwood	25	11,075,030	4,230,301	3,015	20,157,590
Orange	19	1,536,004	816,954	904	4,122,538
Oxford	11	815,086	496,243	574	1,672,075
Palmer	19	1,721,974	1,452,614	1,369	6,243,409
PEABODY	74	21,876,292	7,370,227	6,005	34,969,105
PITTSFIELD	62	24,311,748	13,171,298	9,209	56,326,350
Plainville	6	523,210	292,596	299	1,037,845
Plymouth	16	5,894,951	1,669,034	1,436	10,420,263
QUINCY	129	11,630,068	9,266,404	5,908	27,494,791
Raynham	5	109,165	37,842	37	195,666
Reading	13	1,247,491	491,059	363	2,269,971
REVERE	15	526,588	245,984	270	1,112,684
Rockland	11	2,335,126	750,969	802	4,098,046
SALEM	98	13,295,894	5,860,603	6,028	28,860,249
Saugus	13	437,747	165,101	143	928,461
SOMERVILLE	127	62,663,983	7,799,274	5,790	81,229,180
South Hadley	9	1,029,584	343,125	300	1,925,239
Southbridge	29	7,662,436	6,616,971	5,589	21,189,726
Spencer	12	3,771,994	1,545,025	1,762	6,412,231
SPRINGFIELD	290	40,031,970	24,121,710	17,635	95,956,839
Stoneham	18	1,068,453	425,964	464	2,095,372
Stoughton	23	3,875,241	1,664,492	1,637	7,644,944
Swampscott	9	166,860	72,750	62	400,000
TAUNTON	83	8,615,631	4,594,400	4,392	18,638,106
Templeton	10	990,801	437,773	426	1,802,427
Wakefield	36	1,828,752	1,006,675	1,113	3,853,725
Walpole	12	11,492,050	2,286,100	1,591	16,302,919
WALTHAM	91	6,166,593	6,044,430	5,068	19,168,662
Ware	13	3,414,983	818,159	878	5,877,245
Warren	7	1,936,422	636,169	646	3,314,042
Watertown	53	12,003,765	6,653,920	5,409	27,784,458
Webster	18	5,523,088	2,801,537	2,809	10,053,549
Wellesley	12	734,777	277,530	193	2,088,546
West Springfield	24	8,558,575	3,399,449	2,505	17,239,854
Westborough	10	470,563	319,537	281	1,247,859
WESTFIELD	41	5,299,458	2,271,355	2,021	10,477,286
Weymouth	24	3,042,814	1,157,006	968	5,742,489
Whitman	20	4,187,487	1,619,971	1,467	7,166,643
Winchendon	16	1,416,303	1,032,666	1,015	3,574,592
Winchester	16	3,202,400	938,619	755	5,241,087
Winthrop	12	89,773	45,441	41	202,165
WOBURN	38	6,009,589	1,909,475	1,483	10,449,033
WORCESTER	521	81,964,873	43,014,342	31,302	185,745,793
All other towns	372	79,284,886	38,928,207	34,023	160,587,293

[1] For 137 towns data cannot be presented without disclosing the operations of individual establishments. In 91 towns there were no manufacturing establishments coming within the scope of the census; i.e., having a product value of $5,000.00 or more.

Table 27.—Principal Data Relative to Manufactures in Metropolitan Boston[1]: By Years, 1927-1937, Inclusive.

Years	Number of Establishments	Capital Invested	Value of Stock and Materials Used	Amount of Wages Paid During the Year	Average Number of Wage-earners Employed	Value of Products
			All Industries			
1927	4,755	[2]	$633,003,950	$237,708,229	178,316	$1,289,801,723
1928	4,713	$897,124,478	648,665,366	235,017,427	174,522	1,278,895,983
1929	4,831	[2]	688,277,589	248,419,990	182,780	1,409,136,706
1930	4,652	866,181,625	590,738,808	215,334,364	162,699	1,181,391,542
1931	4,536	[2]	452,641,062	171,567,144	140,074	955,211,023
1932	4,225	674,095,448	337,019,811	124,855,342	114,986	704,875,376
1933	3,962	[2]	324,572,258	116,591,358	110,145	680,941,992
1934	3,938	644,482,368	396,344,058	135,570,392	125,876	782,264,772
1935	4,136	[2]	451,662,025	149,101,478	133,219	866,384,381
1936	4,160	634,317,236	499,124,233	170,838,185	146,133	979,387,766
1937	4,240	[2]	539,835,837	182,531,644	149,560	1,038,966,525

[1] For a list of cities and towns in Metropolitan Boston, see Table 28. In 1929 and thereafter, the towns of Norwood, Stoughton, and Walpole were included in the district.
[2] Not called for on the questionnaire.

Table 28.—Principal Data Relative to Manufactures in Metropolitan Boston in 1937: By Cities and Towns

Cities and Towns (Cities in capital letters)	Number of Establishments	Value of Stock and Materials Used	Amount of Wages Paid During the Year	Average Number of Wage-earners Employed	Value of Products
Metropolitan Boston	*4,240*	*$539,835,837*	*$182,531,644*	*149,560*	*$1,038,966,525*
Arlington	23	391,313	160,772	122	816,418
Belmont	7	39,916	24,802	23	123,152
BOSTON	2,311	213,699,471	71,363,364	59,365	423,318,101
Braintree	16	13,985,815	1,152,204	950	17,840,621
Brookline	23	561,505	461,357	457	1,793,645
CAMBRIDGE	376	65,322,820	20,875,405	18,166	138,350,392
Canton	18	4,390,766	1,352,271	1,259	7,473,089
CHELSEA	105	11,443,202	4,730,333	4,430	22,129,514
Dedham	8	283,128	149,301	107	693,394
EVERETT	110	33,950,025	6,340,858	4,773	53,013,941
LYNN	289	30,628,099	21,416,945	15,721	86,893,553
MALDEN	109	14,186,308	4,198,084	4,403	24,001,190
MEDFORD	51	4,209,264	1,240,775	1,066	7,326,444
MELROSE	20	1,504,174	372,708	377	2,463,928
Milton	7	177,166	75,897	60	410,682
Needham	30	1,438,204	458,531	546	2,940,444
NEWTON	58	5,936,670	3,247,172	3,276	14,157,147
Norwood	25	11,075,030	4,230,301	3,015	20,157,590
QUINCY	129	11,630,068	9,266,404	5,908	27,494,791
Reading	13	1,247,491	491,059	363	2,269,971
REVERE	15	526,588	245,984	270	1,112,684
Saugus	13	437,747	165,101	143	928,461
SOMERVILLE	127	62,663,983	7,799,274	5,790	81,229,180
Stoneham	18	1,068,453	425,964	464	2,095,372
Stoughton	23	3,875,241	1,664,492	1,637	7,644,944
Swampscott	9	166,860	72,750	62	400,000
Wakefield	36	1,828,752	1,006,675	1,113	3,853,725
Walpole	12	11,492,050	2,286,100	1,594	16,302,919
WALTHAM	91	6,166,593	6,044,430	5,068	19,168,662
Watertown	53	12,003,765	6,653,920	5,409	27,784,458
Wellesley	12	734,777	277,530	193	2,088,546
Weymouth	24	3,042,814	1,157,006	968	5,742,489
Winchester	16	3,202,400	938,619	755	5,241,087
Winthrop	12	89,773	45,441	41	202,165
WOBURN	38	6,009,589	1,909,475	1,483	10,449,033
Eight other towns [1]	13	426,017	230,340	183	1,054,793

[1] Includes two towns (Cohasset and Nahant) in which there were no manufacturing establishments, and six towns (Dover, Hingham, Hull, Lexington, Weston, and Westwood) for which data cannot be shown separately without disclosing the operations of individual establishments.

Table 29.—Principal Data Relative to Manufactures in Massachusetts in 1937: By Counties.

Counties	Number of Establishments	Value of Stock and Materials Used	Amount of Wages Paid During the Year	Average Number of Wage-earners Employed	Value of Products
The State	*8,718*	*$1,338,771,937*	*$559,246,370*	*498,602*	*$2,623,115,728*
Barnstable	26	445,521	155,420	145	802,320
Berkshire	169	44,885,652	24,719,483	20,700	100,415,117
Bristol	784	115,406,889	60,995,227	66,996	225,747,999
Dukes	[1]	[1]	[1]	[1]	[1]
Essex	1,099	194,093,211	86,685,168	79,068	372,176,957
Franklin	91	10,985,264	5,465,404	4,981	24,010,313
Hampden	597	122,862,833	57,762,142	46,757	258,556,982
Hampshire	100	11,363,401	5,296,266	5,194	23,593,819
Middlesex	1,566	294,612,575	93,382,061	84,980	531,458,104
Nantucket and Dukes [1]	7	30,667	43,559	26	131,494
Norfolk	397	74,260,696	27,557,952	21,184	134,506,585
Plymouth	343	42,764,776	16,347,396	16,071	78,987,126
Suffolk	2,443	225,759,034	76,385,122	64,106	446,762,464
Worcester	1,096	201,301,418	104,451,170	88,394	425,966,448

[1] Four establishments located in Dukes County are included with the three of Nantucket County in order to avoid disclosing the operations of individual establishments.

Principal Industries...A summary of the data relative to the 20 principal manufacturing industries in Massachusetts for the years 1927-1937, inclusive, arranged in the order of value of products in 1937, is presented in Table 30. The total value of products of the 20 principal industries specified was $1,562,768,423, and constituted 59.6 per cent of the aggregate value of all products ($2,623,115,728) manufactured in Massachusetts during that year.

Table 30.—Summary of Data Relative to Manufactures in Massachusetts: By Principal Industries, 1927-1937[1].

Years	Number of Establishments	Value of Stock and Materials Used	Amount of Wages Paid During the Year	Average Number of Wage-earners Employed	Value of Products
		ALL INDUSTRIES			
1927	10,037	$1,678,812,411	$705,929,549	578,068	$3,317,851,888
1928	9,971	1,663,155,564	670,063,291	540,927	3,224,227,651
1929	9,872	1,681,432,788	694,805,312	557,494	3,392,162,237
1930	9,586	1,333,317,227	573,838,044	481,449	2,676,387,256
1931	9,305	1,015,093,739	474,189,202	434,441	2,157,450,449
1932	8,778	718,347,675	334,358,550	350,521	1,521,752,939
1933	8,145	800,611,332 [2]	354,523,634	398,592	1,668,733,387
1934	8,336	924,075,172 [2]	408,617,489	423,933	1,855,598,291
1935	8,517	1,078,869,946	448,326,676	445,519	2,103,691,437
1936	8,685	1,230,882,709	514,599,251	481,432	2,437,520,795
1937	8,718	1,338,771,937	559,246,370	498,602	2,623,115,728
		Woolen and Worsted Goods			
1927	174	163,149,995	58,035,387	51,064	268,835,806
1928	171	145,440,485	51,882,279	45,248	234,206,586
1929	156	146,020,898	52,304,583	45,673	242,898,460
1930	145	92,027,443	39,245,500	35,104	156,943,782
1931	128	86,659,519	37,436,905	37,221	147,701,378
1932	116	49,305,061	22,708,245	28,593	87,814,050
1933	111	81,395,142	33,072,129	39,808	148,798,542
1934	114	73,518,559	30,646,684	35,991	125,701,633
1935	115	117,877,123	46,251,412	49,416	193,886,320
1936	117	133,488,519	46,212,535	48,421	209,825,208
1937	119	147,336,458	49,804,314	47,994	232,513,060
		Boots and Shoes, Other Than Rubber			
1927	469	120,353,570	65,282,193	55,986	237,516,655
1928	453	126,778,246	63,871,277	55,478	238,884,158
1929	436	124,024,880	64,205,152	55,093	241,587,864
1930	420	95,336,095	50,896,764	49,105	185,072,323
1931	397	79,519,951	45,679,225	47,664	160,666,398
1932	392	60,709,609	36,843,238	43,265	126,222,124
1933	389	65,591,230	36,559,127	46,739	128,073,952
1934	347	68,463,192	39,444,814	45,951	133,985,336
1935	289	68,353,293	38,566,486	44,371	132,686,781
1936	287	74,767,397	39,971,383	46,294	142,308,412
1937	291	81,138,368	41,114,626	46,604	150,999,351
		Electrical Machinery, Apparatus, and Supplies			
1927	122	42,197,890	33,903,793	24,759	139,348,725
1928	120	56,874,825	33,972,583	24,788	156,081,762
1929	106	64,323,352	41,011,734	28,844	184,786,944
1930	111	45,095,735	31,948,815	24,217	120,334,662
1931 [3]	102	31,777,549	22,751,703	20,055	104,325,847
1932 [3]	103	18,228,170	12,254,949	13,571	53,643,578
1933 [3]	84	19,586,736	13,263,342	14,285	52,628,350
1934 [3]	88	23,723,572	17,502,155	17,044	67,874,375
1935 [3]	84	31,710,691	20,963,303	18,746	91,521,181
1936 [3]	83	46,937,988	30,224,266	23,645	131,354,823
1937	74	51,873,522	37,601,286	24,642	148,798,048

[1] In making comparisons for the several years of the money values presented in this summary, due allowance should be made for price fluctuations from year to year. The *values* of products manufactured do not necessarily represent the relative *volume* of goods produced in the several years.

[2] Includes the processing tax.

[3] Includes radio apparatus, tabulated prior to 1931 with this industry and retained here for purposes of comparison. Presented separately, in 1937, radio apparatus had ten establishments with a product value of $16,035,964.

Table 30.—Summary of Data Relative to Manufactures in Massachusetts: By Principal Industries, 1927-1937.—Continued.

Years	Number of Establishments	Value of Stock and Materials Used	Amount of Wages Paid During the Year	Average Number of Wage-earners Employed	Value of Products
Cotton Goods, excluding Cotton Small Wares					
1927	163	$145,630,938	$88,089,667	90,875	$284,706,607
1928	153	120,815,771	61,215,058	65,192	216,997,848
1929	135	125,441,636	65,556,859	70,788	253,618,009
1930	134	79,531,622	47,363,957	53,745	151,834,379
1931	120	53,329,684	38,868,889	46,990	114,707,445
1932	105	30,030,280	22,698,692	32,464	68,040,258
1933	103	51,189,247 [1]	31,110,036	45,418	98,602,761
1934	105	57,690,978 [1]	36,473,572	49,297	111,247,620
1935	105	55,691,405	31,012,917	41,230	105,412,577
1936	100	50,606,609	34,428,018	42,095	106,891,365
1937	96	54,475,099	36,226,586	42,562	110,105,566
Printing and Publishing					
1927	1,022 [2]	35,368,221	25,482,123	14,382	131,975,238
1928	821	34,795,664	26,594,305	14,634	112,243,252
1929	1,000 [2]	35,245,669	28,115,167	15,198	140,481,332
1930	799	32,050,850	27,077,682	15,051	111,526,855
1931	963 [2]	26,416,073	23,456,179	13,224	111,395,181
1932	767	20,617,212	19,667,336	12,022	77,732,521
1933	829 [2]	17,238,002	16,336,090	11,359	81,164,261
1934	723	19,963,785	18,835,230	12,406	78,773,082
1935	876 [2]	20,901,080	19,857,322	12,910	95,446,928
1936	759	22,362,793	22,620,331	13,957	89,147,437
1937	872 [2]	24,312,620	23,459,897	14,752	106,604,044
Foundry and Machine-Shop Products					
1927	496	30,759,703	30,059,274	19,898	94,149,409
1928	475	32,606,432	30,447,463	19,803	99,613,068
1929	465	36,893,962	32,969,609	21,243	114,965,036
1930	442	28,219,034	27,582,822	18,492	88,162,402
1931	414	17,806,400	18,841,627	14,748	60,143,267
1932	388	11,685,917	12,556,361	10,179	36,472,363
1933	335	11,043,569	12,084,953	11,022	38,524,134
1934	360	15,524,218	15,004,410	12,301	49,352,674
1935	373	18,109,987	16,913,049	13,422	56,399,807
1936	383	24,705,987	22,042,608	15,689	72,874,291
1937	378	31,285,298	26,014,518	17,611	88,706,980
Clothing, Men's and Women's, Including Work Clothing					
1927	472	37,713,123	15,131,382	13,163	72,296,725
1928	500	37,087,769	14,354,468	13,310	69,021,128
1929	500	41,841,471	15,087,955	13,174	78,174,045
1930	489	35,613,636	14,398,266	13,540	65,951,764
1931	487	31,017,083	13,216,215	14,052	59,920,324
1932	474	23,706,198	9,564,654	11,874	44,324,186
1933	412	25,706,754	9,503,081	12,611	47,726,650
1934	442	29,204,071	12,065,074	13,984	53,894,126
1935	459	33,608,061	14,053,622	16,450	63,535,943
1936	483	41,271,955	16,759,092	19,356	75,850,026
1937	509	43,254,094	17,365,501	20,128	80,592,504
Bread and other Bakery Products					
1927	1,044	37,101,802	11,028,342	8,473	73,706,221
1928	1,108	38,297,898	11,351,600	8,770	76,006,262
1929	1,077	39,664,130	13,700,195	10,413	80,270,302
1930	1,132	36,656,100	13,036,847	10,041	78,462,469
1931	1,119	29,587,755	12,753,731	10,079	67,805,420
1932	1,111	25,236,168	10,643,686	9,315	59,488,548
1933	1,021	25,972,865	11,907,157	10,797	55,568,784
1934	1,075	32,983,792	12,889,102	11,393	67,094,325
1935	1,083	40,359,800	14,369,048	12,874	72,881,586
1936	1,087	38,942,666	13,678,986	12,361	76,819,878
1937	1,078	40,786,708	16,320,671	13,083	79,458,398

[1] Includes the processing tax.

[2] The census for the years 1927, 1929, 1931, 1933, 1935, and 1937, included certain publishing establishments not canvassed in the other years specified, and data for these years, therefore, are not strictly comparable with corresponding data for the other years specified.

Table 30.—Summary of Data Relative to Manufactures in Massachusetts: By Principal Industries, 1927-1937 .—Continued.

Years	Number of Establishments	Value of Stock and Materials Used	Amount of Wages Paid During the Year	Average Number of Wage-earners Employed	Value of Products
Leather, Tanned, Curried, and Finished					
1927	115	$47,860,959	$14,587,638	10,768	$77,649,457
1928	124	53,764,692	14,531,789	10,975	82,268,326
1929	113	60,240,934	14,206,501	10,707	88,348,403
1930	107	41,890,582	11,645,166	8,953	63,591,977
1931	98	29,966,431	10,697,504	8,657	50,051,338
1932	101	19,253,879	8,651,070	7,932	35,608,824
1933	100	27,193,279	11,077,713	9,980	48,630,000
1934	99	30,878,912	11,505,967	10,042	50,131,406
1935	96	34,883,903	12,506,035	10,334	56,811,498
1936	96	40,689,074	13,266,632	10,672	65,794,775
1937	94	47,881,198	12,974,567	10,228	70,786,960
Paper and Wood Pulp					
1927	83	51,815,477	15,904,292	12,368	93,177,974
1928	84	53,105,186	16,420,703	12,602	93,939,888
1929	76	50,091,469	16,648,893	12,361	95,084,573
1930	76	41,204,938	14,881,473	11,603	78,339,273
1931	77	27,898,672	11,960,645	10,652	58,148,375
1932	75	19,304,723	8,901,610	9,382	39,335,415
1933	68	19,193,695	8,212,224	9,513	40,577,557
1934	73	23,021,908	9,591,727	10,071	46,635,725
1935	61	29,222,903	10,595,463	10,264	53,222,512
1936	68	32,222,665	11,715,827	10,244	60,010,622
1937	66	39,015,249	13,048,116	10,499	68,061,275
Meat Packing, Wholesale					
1927	40	51,139,522	4,127,491	3,191	58,796,506
1928	37	54,604,066	3,855,033	2,988	63,509,485
1929	33	56,599,409	3,572,432	2,594	64,354,688
1930	31	51,030,796	3,435,693	2,530	59,425,738
1931	31	32,764,048	2,871,319	2,123	39,704,308
1932	29	22,994,226	2,547,086	2,165	29,408,410
1933	26	22,727,714	2,555,707	2,358	30,181,196
1934	26	33,793,756 [1]	3,324,627	2,615	41,283,296
1935	26	41,721,053	2,835,515	2,167	46,424,430
1936	26	41,000,326	3,285,924	2,270	47,193,004
1937	26	47,269,052	3,576,944	2,463	53,893,559
Boot and Shoe Cut Stock and Findings (Not made in boot and shoe factories)					
1927	393	60,126,412	8,830,087	7,763	84,124,051
1928	364	63,242,637	8,286,694	7,615	83,979,422
1929	361	56,167,055	8,391,863	7,658	78,200,992
1930	349	42,855,725	7,259,574	6,917	59,345,418
1931	351	31,775,145	6,363,401	6,463	46,348,503
1932	334	22,829,247	5,161,390	5,817	35,280,809
1933	306	23,322,043	5,827,882	6,989	38,394,504
1934	301	24,498,170	6,482,718	7,007	39,540,231
1935	283	30,414,515	6,653,003	7,164	45,795,608
1936	285	35,688,422	7,406,141	7,697	52,008,977
1937	281	36,507,240	7,376,072	7,782	53,835,759
Rubber Goods, including Rubber Tires and Inner Tubes					
1927	64	56,715,715	13,298,241	10,364	97,717,724
1928	68	53,136,600	13,714,866	10,552	89,672,751
1929	62	44,604,202	12,400,228	9,764	76,439,857
1930	65	33,032,734	10,459,597	8,658	62,870,682
1931	60	19,928,837	7,758,324	6,728	46,371,115
1932	58	14,840,426	5,778,272	6,347	33,351,480
1933	56	17,518,009	6,203,983	6,843	35,953,802
1934	52	18,903,718	6,449,584	6,921	36,265,951
1935	52	22,062,346	6,806,572	6,797	39,617,415
1936	57	24,565,670	7,800,244	7,358	44,564,014
1937	58	30,425,758	8,893,207	7,661	53,666,432

[1] Includes the processing tax.

Table 30.—Summary of Data Relative to Manufactures in Massachusetts: By Principal Industries, 1927-1937, —Continued.

Years	Number of Establishments	Value of Stock and Materials Used	Amount of Wages Paid During the Year	Average Number of Wage-earners Employed	Value of Products
		Dyeing and Finishing Textiles			
1927	68	$51,434,428	$16,229,352	13,826	$84,459,666
1928	66	52,048,921	15,738,360	13,629	83,707,199
1929	67	53,034,427	16,853,664	14,450	93,148,770
1930	65	50,849,268	14,838,020	13,081	75,853,910
1931	70	47,794,925	14,926,387	13,060	76,819,045
1932	71	34,010,823	10,377,674	11,118	54,353,966
1933	65	32,488,442	10,366,906	11,178	54,714,526
1934	73	45,512,362	12,506,124	12,942	67,293,143
1935	58[1]	17,273,926[1]	10,059,470[1]	10,423[1]	34,759,649[1]
1936	59	44,608,493	12,938,024	11,942	71,139,210
1937	59	27,231,992	13,705,564	12,250	51,555,625
		Textile Machinery and Parts			
1927	119	15,008,418	16,242,087	12,009	46,865,937
1928	119	12,350,981	13,651,765	10,399	39,082,682
1929	111	12,467,673	14,233,661	10,597	41,202,970
1930	109	8,423,447	10,512,566	8,602	27,033,415
1931	102	6,791,520	8,865,356	7,527	24,090,354
1932	101	4,197,545	5,153,252	5,197	13,635,758
1933	99	7,477,918	7,987,840	7,972	25,143,027
1934	104	7,851,179	9,375,405	8,788	26,658,712
1935	103	9,629,885	8,511,427	7,691	26,571,954
1936	104	10,971,073	12,573,269	9,436	35,068,321
1937	101	13,779,963	14,006,854	10,651	43,967,853
		Silk and Rayon Goods			
1927	33	23,218,826	7,615,872	7,357	38,220,144
1928	30	16,401,463	7,137,603	6,782	32,022,695
1929[2]	42	20,959,668	7,105,466	7,390	37,412,704
1930	41	12,223,525	5,893,804	5,684	24,631,823
1931	38	10,468,547	5,809,739	6,939	22,920,329
1932	36	7,665,658	4,169,366	5,647	13,642,378
1933	42	11,542,895	6,514,871	9,278	23,936,958
1934	42	11,506,013	6,974,295	9,363	23,639,005
1935	34	20,826,068	9,755,225	12,124	36,105,761[3]
1936	34	25,458,001	10,239,993	12,309	42,690,224
1937	32	24,670,363	11,007,096	12,648	41,367,073
		Paper Goods			
1927	54	11,015,381	2,413,778	2,007	18,241,172
1928	60	11,515,112	2,665,490	2,170	19,328,634
1929	63	17,869,831	5,219,802	4,051	29,886,125[4]
1930	55	14,603,203	4,518,725	3,536	24,352,899
1931	59	10,960,569	3,795,246	3,218	19,232,858
1932	56	7,859,546	2,951,831	2,842	14,312,521
1933	67	10,314,135	3,391,789	3,682	18,488,323
1934	72	12,506,885	4,227,752	4,277	21,411,938
1935	75	15,128,053	5,113,602	4,896	30,364,729
1936	77	17,320,015	5,933,569	5,404	33,286,066
1937	79	19,225,829	6,029,440	5,513	36,717,988
		Knit Goods			
1927	93	22,315,903	9,339,035	9,660	43,936,724
1928	90	21,070,158	9,162,848	9,092	40,165,755
1929	86	20,401,873	8,945,286	8,817	41,050,135
1930	80	16,981,448	7,878,614	8,133	34,479,056
1931	70	14,997,853	6,765,890	7,637	29,460,966
1932	66	11,560,929	5,306,107	6,772	22,160,166
1933	70	13,398,553	5,524,729	7,680	25,549,661
1934	77	14,423,617	6,292,813	7,933	26,008,808
1935	85	15,042,736	6,636,468	8,357	26,928,702
1936	89	18,888,884	8,182,564	9,760	34,726,125
1937	82	16,926,172	7,856,750	9,256	31,821,173

[1] Not comparable with prior years due, in large measure, to changes in industry classification.

[2] Prior to 1929, the title of this industry was "*Silk Goods.*" For that year and subsequently, the manufacture of rayon has been included and the title of the industry changed to "*Silk and Rayon Goods.*"

[3] The increase in value of products in 1935 over 1934 is attributable in large measure to the inclusion of several large establishments tabulated, prior to 1935, as manufacturers of cotton goods.

[4] Changes in classification, particularly the inclusion of labels and tags, and cardboard, in 1929 and thereafter, render the subsequent data not strictly comparable with those for the earlier years.

Table 30.—Summary of Data Relative to Manufactures in Massachusetts: By Principal Industries, 1927-1937.—Concluded.

Years	Number of Establishments	Value of Stock and Materials Used	Amount of Wages Paid During the Year	Average Number of Wage-earners Employed	Value of Products
		Confectionery			
1927	148	$28,308,227	$7,243,925	8,373	$49,673,740
1928	153	25,547,674	6,916,799	7,489	46,124,991
1929	144	22,820,300	6,744,576	7,471	43,932,366
1930	144	19,994,216	6,291,556	6,541	37,815,816
1931	127	14,646,330	4,983,946	5,943	30,176,229
1932	124	11,628,850	3,769,139	5,183	22,227,447
1933	108	11,333,589	3,889,281	5,429	20,959,943
1934	109	13,174,168	4,445,673	5,781	24,342,785
1935	108	15,678,998	4,594,156	6,078	27,092,367
1936	115	16,045,009	4,943,397	6,214	28,988,499
1937	106	17,403,964	5,230,466	6,392	30,679,485
		Boxes, Paper			
1927	117	12,504,680	5,135,138	5,300	24,263,922
1928	114	12,459,121	5,249,750	5,298	23,591,687
1929	110	13,505,759	5,422,332	5,345	25,267,448
1930	104	11,357,407	4,621,800	4,731	20,922,191
1931	101	10,131,097	4,346,894	4,499	19,241,732
1932	101	8,026,995	3,380,847	3,942	15,597,606
1933	97	10,145,478	3,490,359	4,211	18,577,574
1934	99	10,893,429	4,068,359	4,309	20,430,813
1935	104	12,861,111	4,323,210	4,634	22,753,608
1936	108	14,656,386	4,849,055	4,878	25,649,174
1937	111	16,528,658	5,056,958	5,118	28,737,290

Power Laundries in Massachusetts, 1927-1937

Power laundries are not, strictly speaking, manufacturing establishments, but they perform a "service function" and their importance appears to justify the collection, annually, of statistics with reference to their operation, as in the case of manufacturing establishments.

In Table 31 principal data relative to power laundries in Massachusetts are presented for the years 1927 to 1937, inclusive. The total number of power laundries from which reports were obtained in 1937 was 394, which number does not include Chinese or other hand laundries, or laundries in hotels, or those connected with educational or charitable institutions. The term, "value of work done," may be defined as the amount charged for services rendered by the power laundries from which reports were obtained. In 1937 the value of work done by the 394 establishments reporting was $20,487,381. The average number of wage-earners employed in these establishments was 10,921, and the amount of wages paid to these wage-earners during the year was $9,404,237.

Although the number of power laundries operating in the State in 1937 was 16 less than the number operating in 1936, increases were indicated in 1937 as follows: number of wage-earners employed, 7.8 per cent; amount of wages paid, 14.8 per cent; value of work done, 4.9 per cent.

With reference to the collection of data relative to power laundries for 1937, the Department of Labor and Industries desires to express its appreciation of the cordial co-operation of the Massachusetts Laundry Owners' Association and certain public accountants, without which a comprehensive census of power laundries could not have been taken.

Table 31.—Principal Data Relative to Power Laundries in Massachusetts: By Years, 1927-1937, Inclusive.

Years	Number of Establishments	Cost of Supplies and Materials Used	Amount of Wages Paid During the Year	Average Number of Wage-earners Employed	Value of Work Done
1927	431	$3,467,124	$10,394,161	9,919	$22,654,974
1928	414	3,459,467	9,391,674	9,339	22,364,975
1929	458	3,760,859	11,155,442	10,736	25,615,551
1930	447	3,634,568	10,395,837	10,233	24,537,642
1931	445	3,650,511	10,616,385	10,461	23,343,435
1932	436	2,953,832	8,445,032	9,080	19,589,069
1933	419	2,920,502	7,679,992	9,640	17,756,003
1934	421	2,979,600	7,734,574	9,397	17,791,383
1935 [1]	424	3,008,970	8,178,631	9,996	18,841,361
1936	410	3,219,932	8,188,481	10,127	19,537,554
1937	394	3,469,975	9,404,237	10,921	20,487,381

[1] Data for 1935 were furnished by the United States Bureau of the Census and included cleansers and dyers.

Plate 1

TRENDS OF EMPLOYMENT AND TOTAL WAGES PAID IN MANUFACTURING IN MASSACHUSETTS, 1926-1938

Base: Average for Three Years 1925, 1926, 1927=100

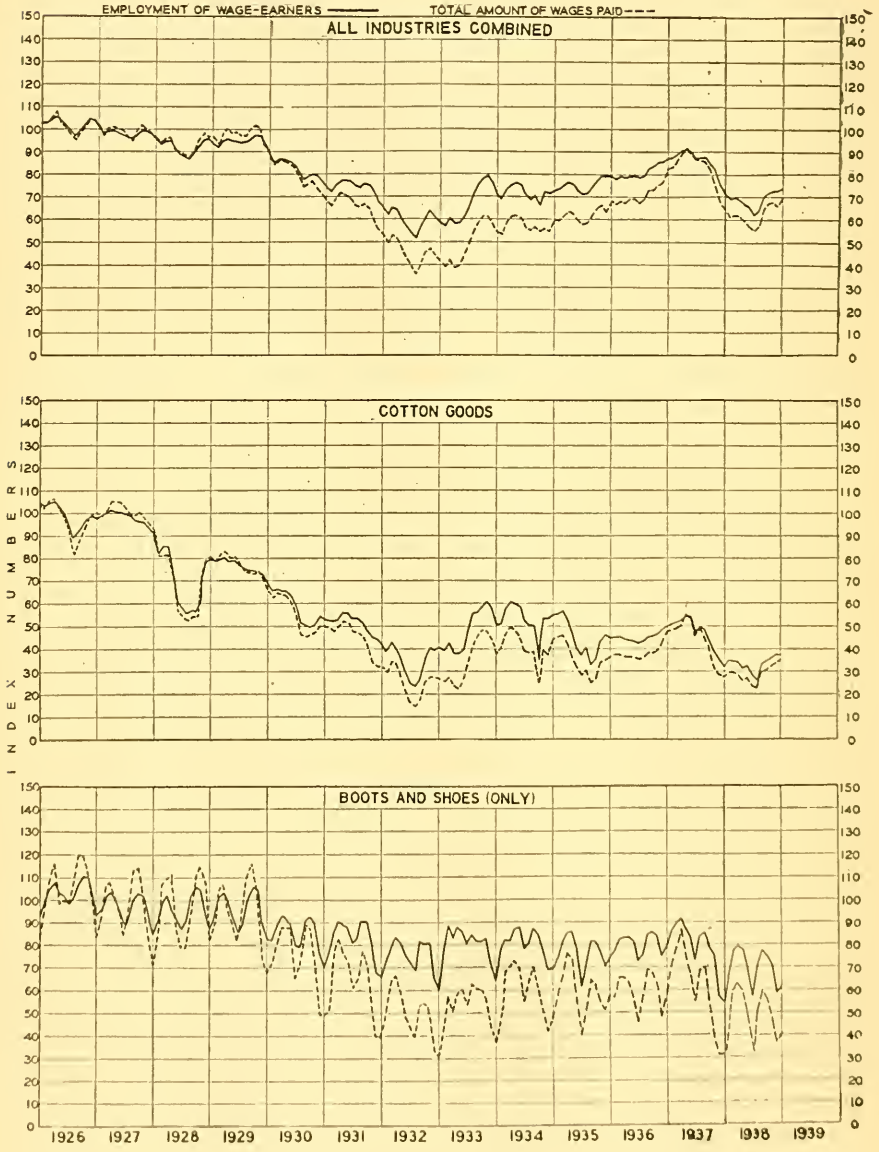


Plate 2

TRENDS OF EMPLOYMENT AND TOTAL WAGES PAID IN MANUFACTURING IN MASSACHUSETTS, 1926-1938 (Continued)

Base: Average for Three Years 1925, 1926, 1927=100

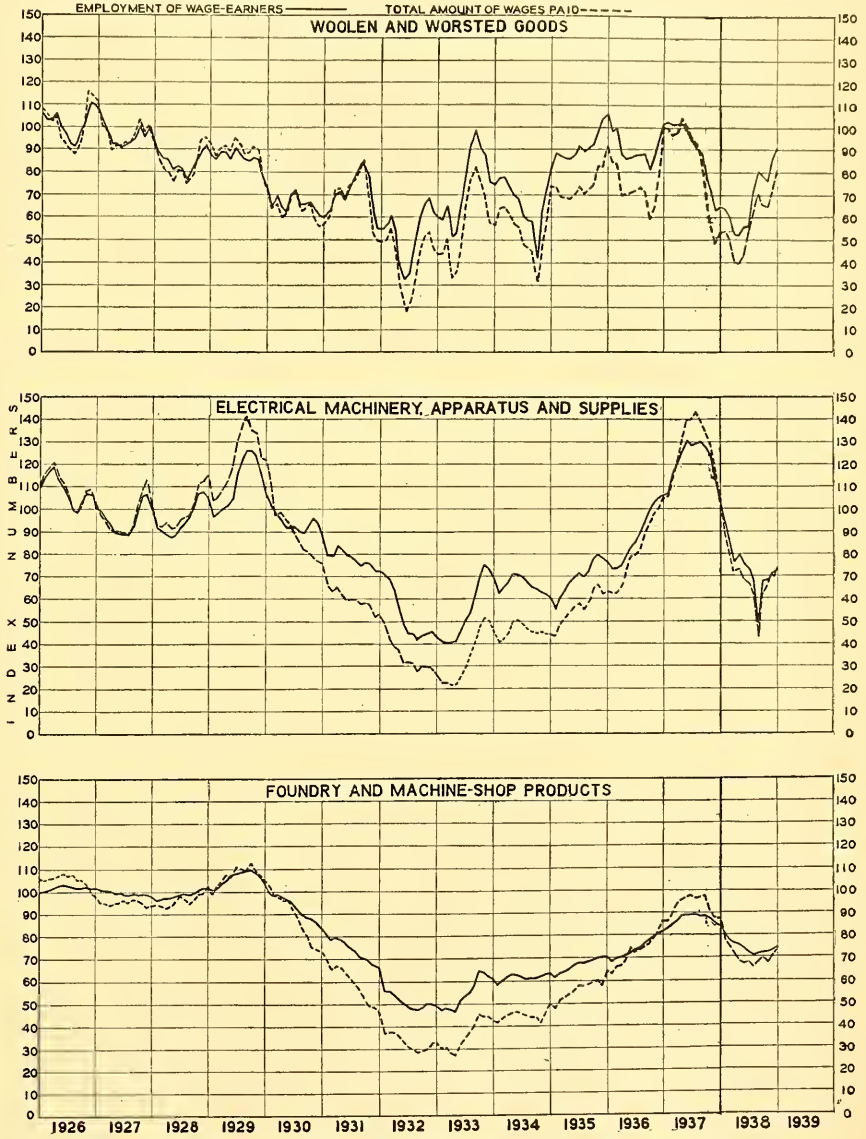


Plate 3

TRENDS OF EMPLOYMENT AND TOTAL WAGES PAID IN MANUFACTURING IN MASSACHUSETTS, 1926-1938 (Continued)

Base: Average for Three Years 1925, 1926, 1927=100

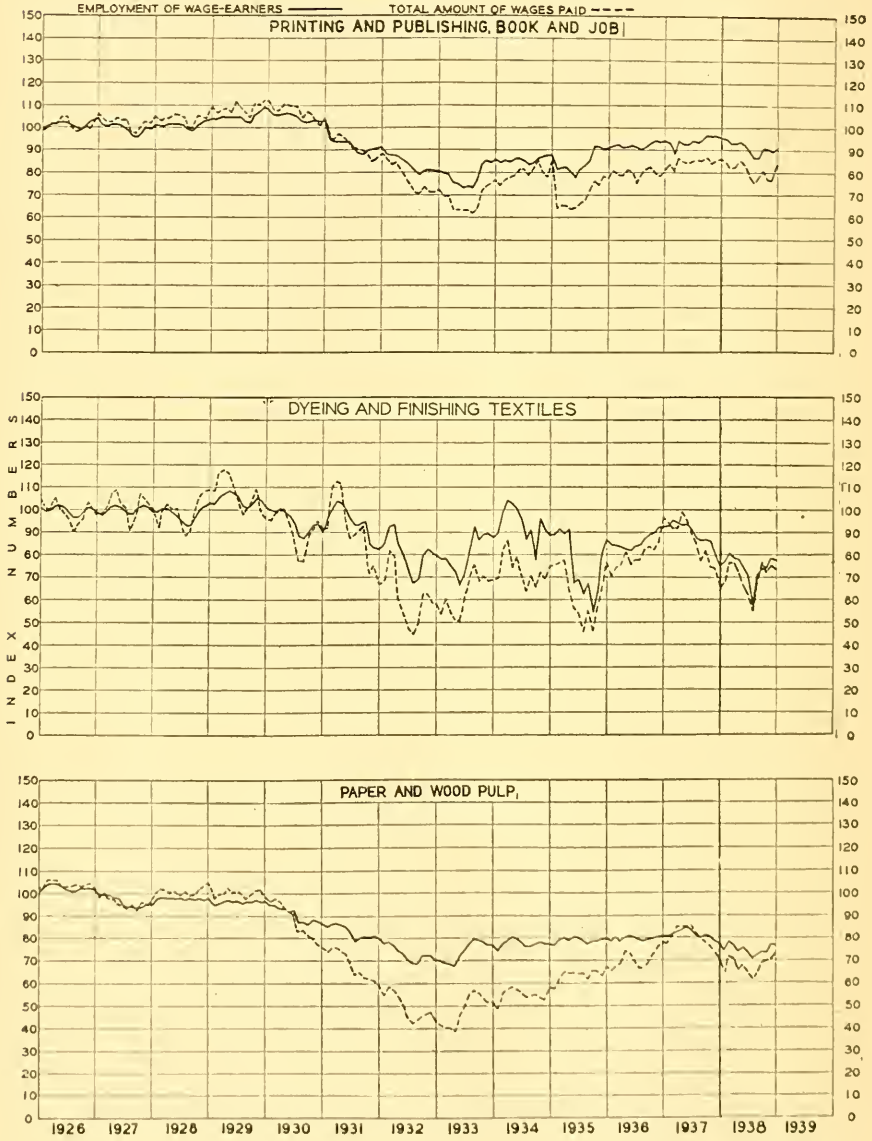


Plate 4

TRENDS OF EMPLOYMENT AND TOTAL WAGES PAID IN MANUFACTURING IN MASSACHUSETTS, 1926-1938 (Continued)

Base: Average for Three Years 1925, 1926, 1927=100

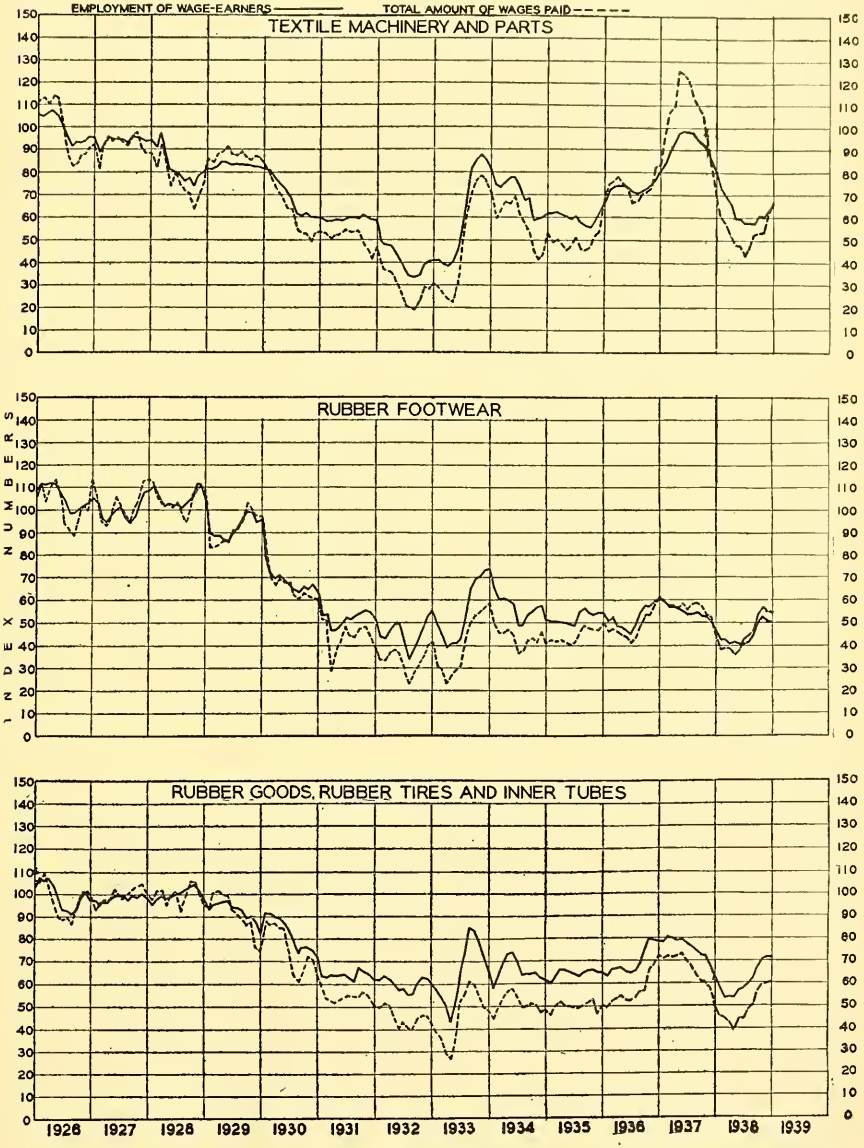


Plate 5

TRENDS OF EMPLOYMENT AND TOTAL WAGES PAID IN MANUFACTURING IN MASSACHUSETTS, 1926-1938 (Continued)

Base: Average for Three Years 1925, 1926, 1927=100

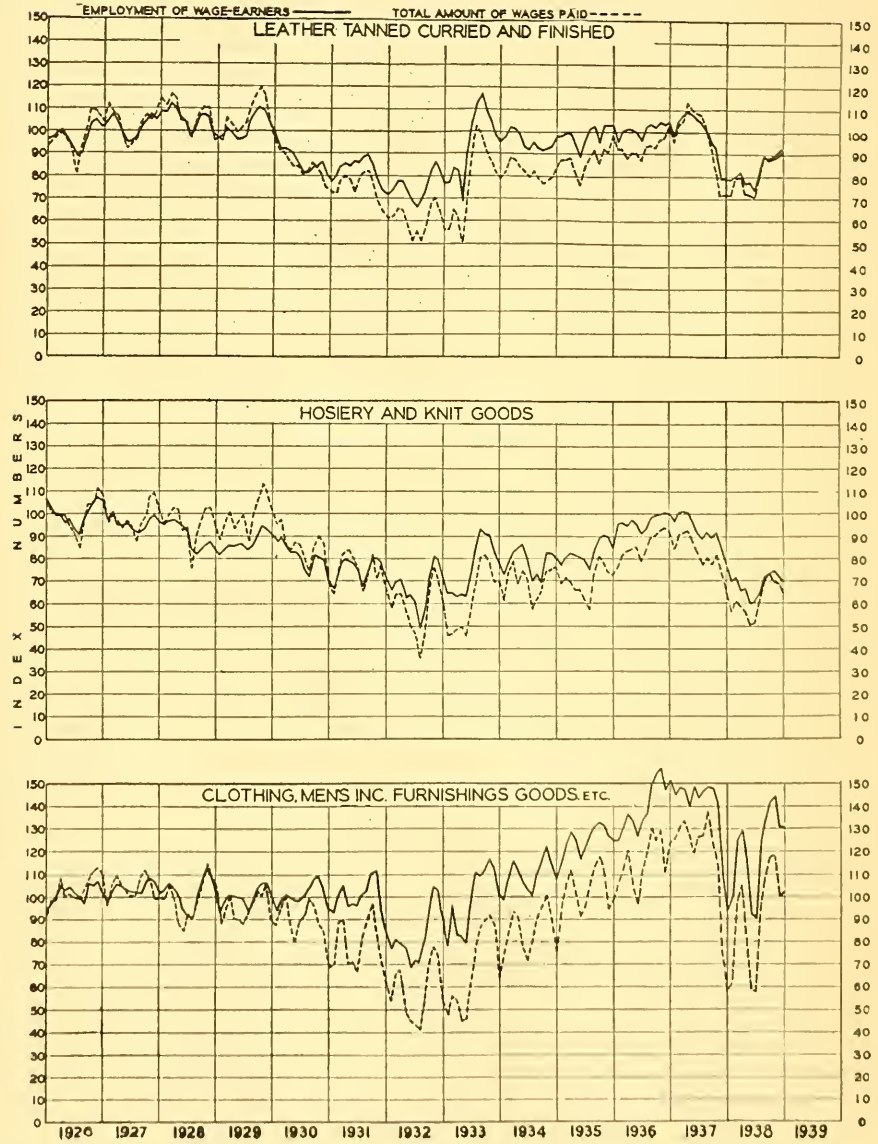


Plate 6

TRENDS OF EMPLOYMENT AND TOTAL WAGES PAID IN MANUFACTURING IN MASSACHUSETTS, 1926-1938 (Continued)

Base: Average for Three Years 1925, 1926, 1927=100

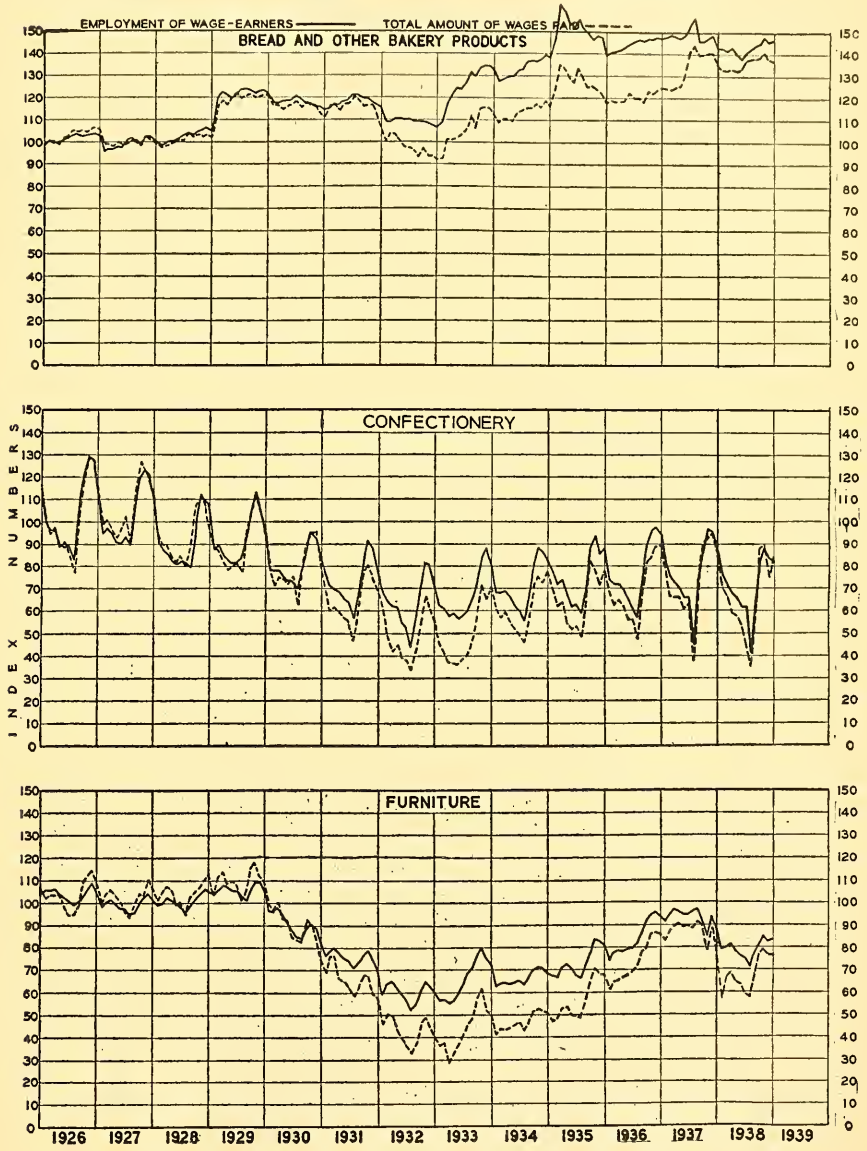


Plate 7

TRENDS OF EMPLOYMENT AND TOTAL WAGES PAID IN MANUFACTURING IN MASSACHUSETTS, 1926-1938 (Concluded)

Base: Average for Three Years 1925, 1926, 1927=100

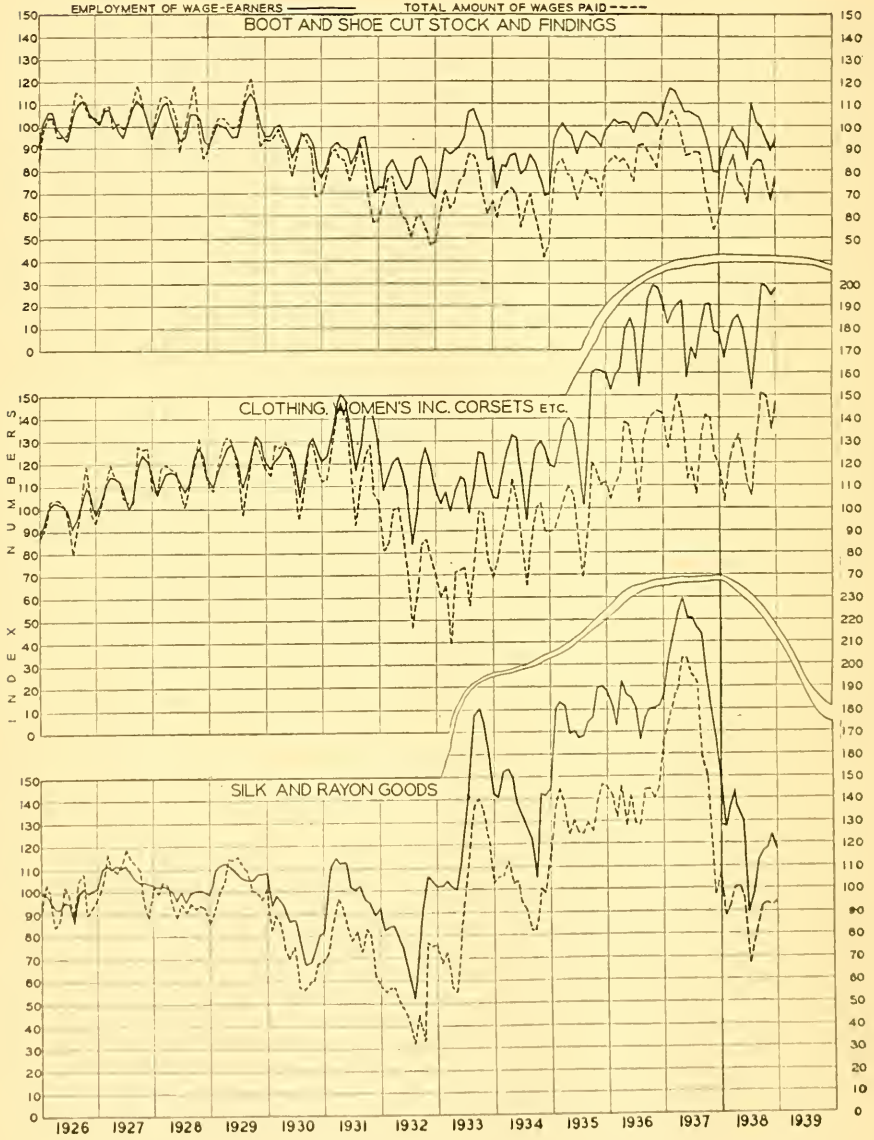


Plate 8

TRENDS OF EMPLOYMENT AND TOTAL WAGES PAID IN MANUFACTURING IN 16 LEADING INDUSTRIAL CITIES IN MASSACHUSETTS: 1935-1938

Base: Average for Three Years 1925, 1926, 1927=100

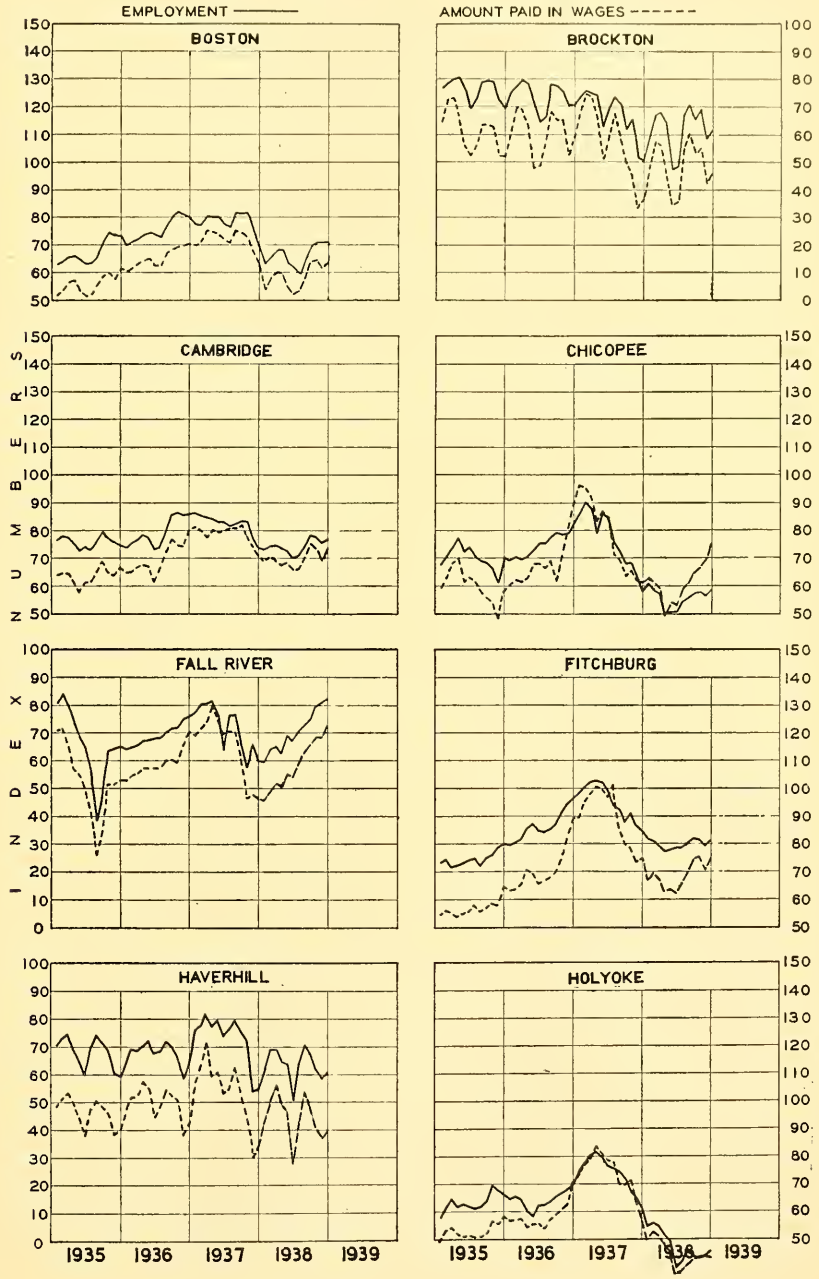


Plate 9

TRENDS OF EMPLOYMENT AND TOTAL WAGES PAID IN MANUFACTURING IN 16 LEADING INDUSTRIAL CITIES IN MASSACHUSETTS: 1935-1938 (Concluded)

Base: Average for Three Years 1925, 1926, 1927=100

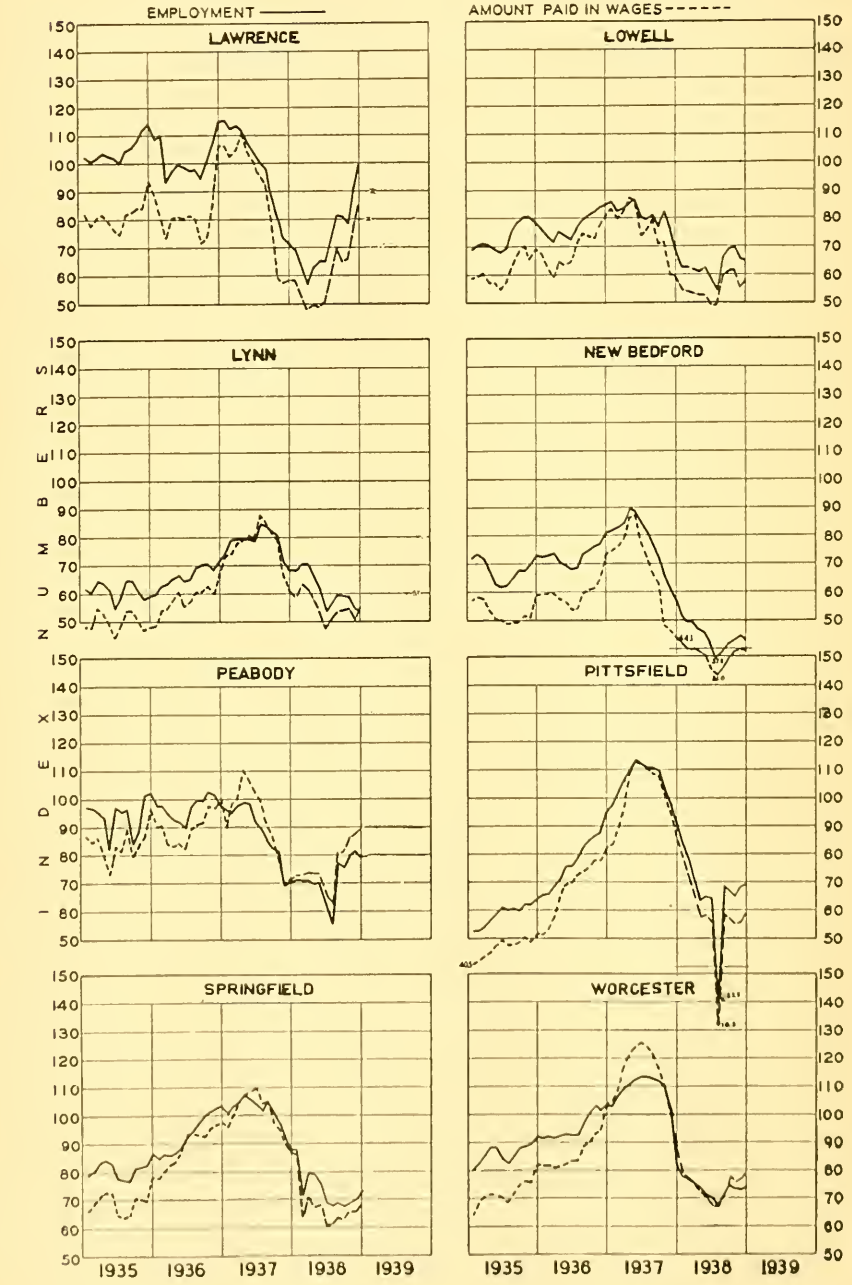


Plate 10

TRENDS OF EMPLOYMENT IN WHOLESALE AND RETAIL TRADE IN MASSACHUSETTS: 1935-1938

Base: Average for Year 1929=100

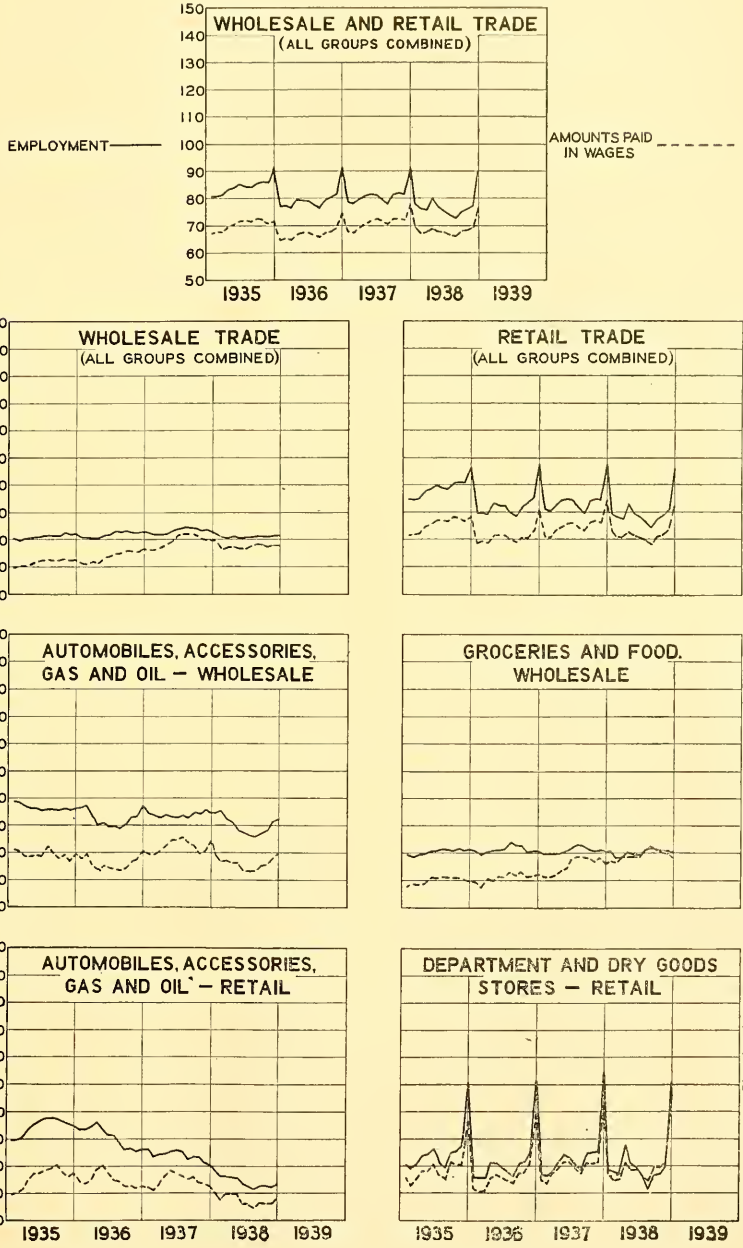


Plate 11

TRENDS OF TOTAL WAGES PAID IN WHOLESALE AND RETAIL TRADE IN MASSACHUSETTS: 1935-1938—(Concluded)

Base: Average for Year 1929=100

Plate 12

TRENDS OF EMPLOYMENT, TOTAL WAGES PAID, AND MAN-HOURS WORKED IN BUILDING CONSTRUCTION: BY MONTHS; APRIL, 1927-DECEMBER, 1938

Base: Average for Year 1928=100

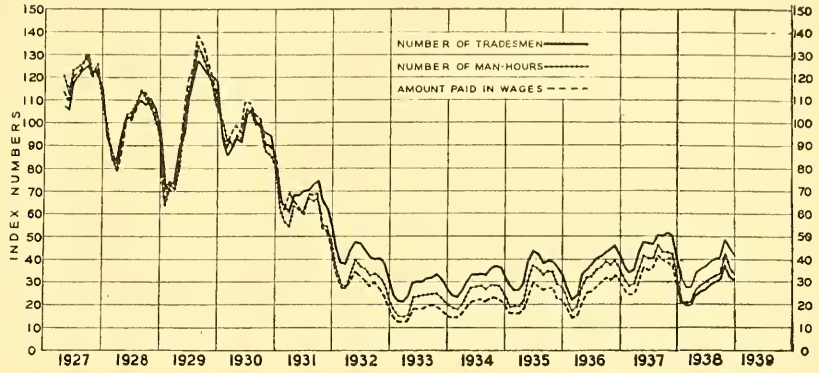


Plate 13

TREND OF PROSPECTIVE BUILDING IN 55 MUNICIPALITIES IN MASSACHUSETTS, ALL CLASSES OF PROJECTS COMBINED: 1927-1938

Base: Average for Year 1927=100

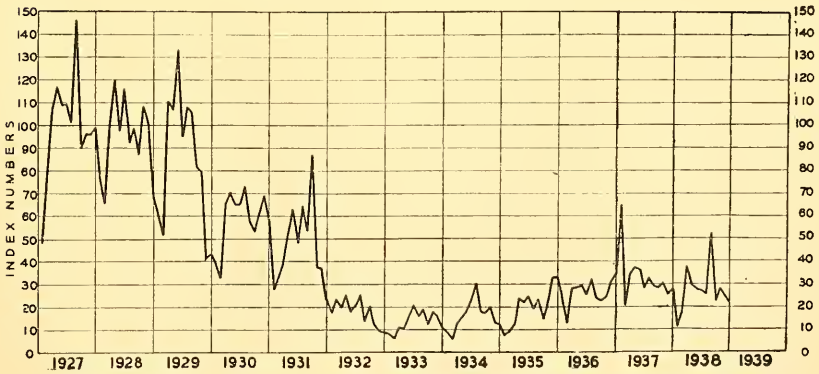


Plate 14

TRENDS OF EMPLOYMENT AND TOTAL WAGES PAID BY PUBLIC UTILITY COMPANIES, 1932-1938

Base: Average for Year 1930=100

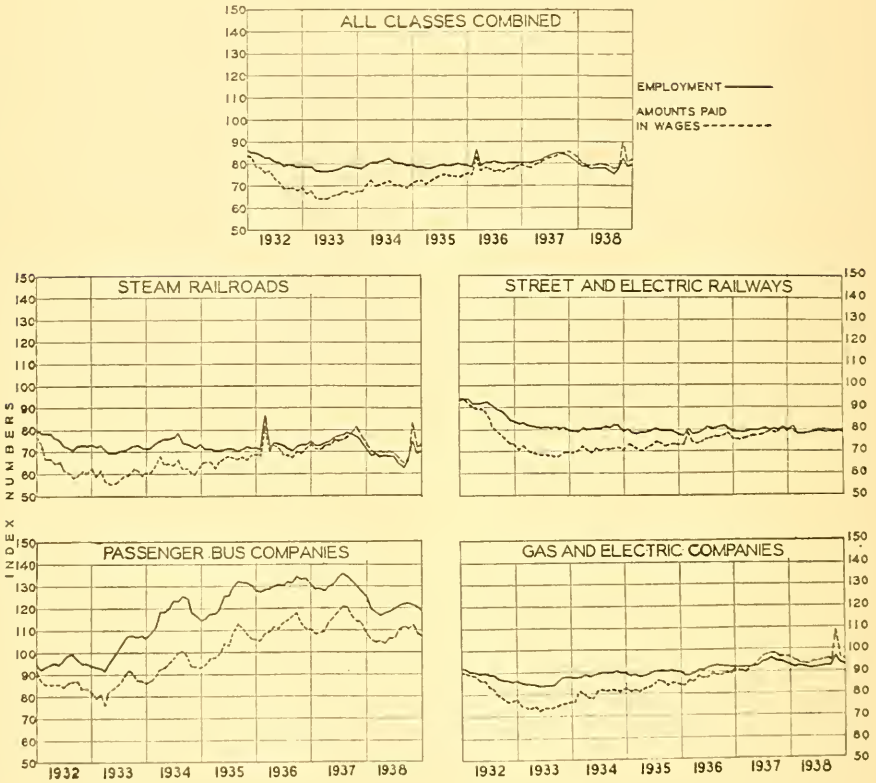


Plate 15

TRENDS OF EMPLOYMENT AND TOTAL WAGES PAID IN MUNICIPALITIES: 1932-1938

Base: September, 1931=100

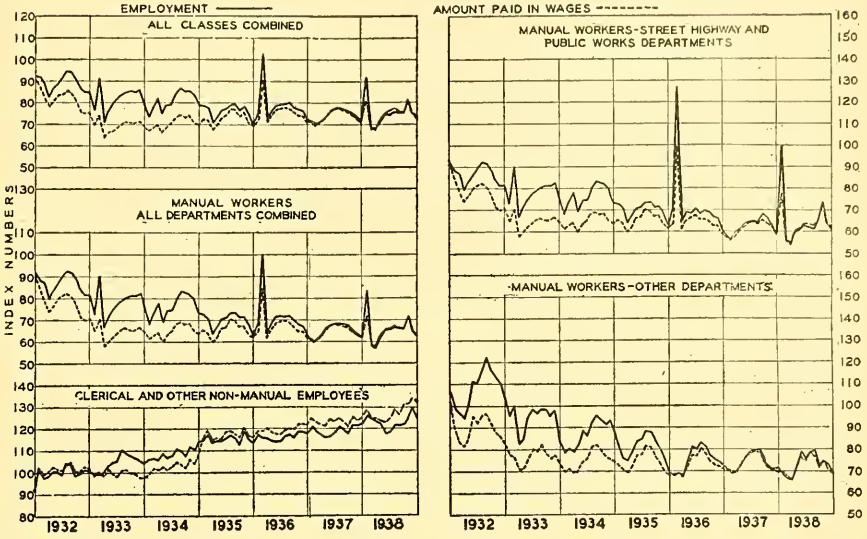


Plate 16

TRENDS OF EMPLOYMENT AND TOTAL WAGES PAID IN 12 MISCELLANEOUS CLASSES OF EMPLOYMENT IN MASSACHUSETTS: 1932-1938

Base: September, 1931=100

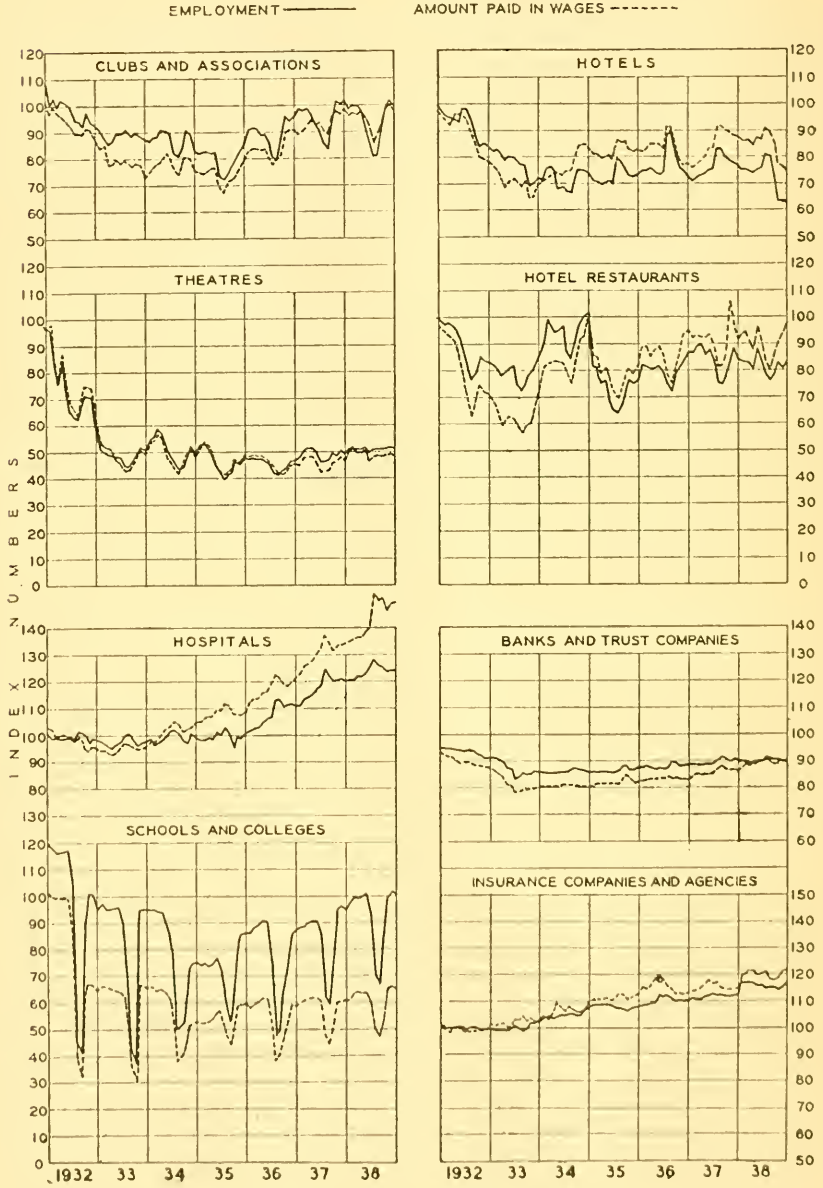
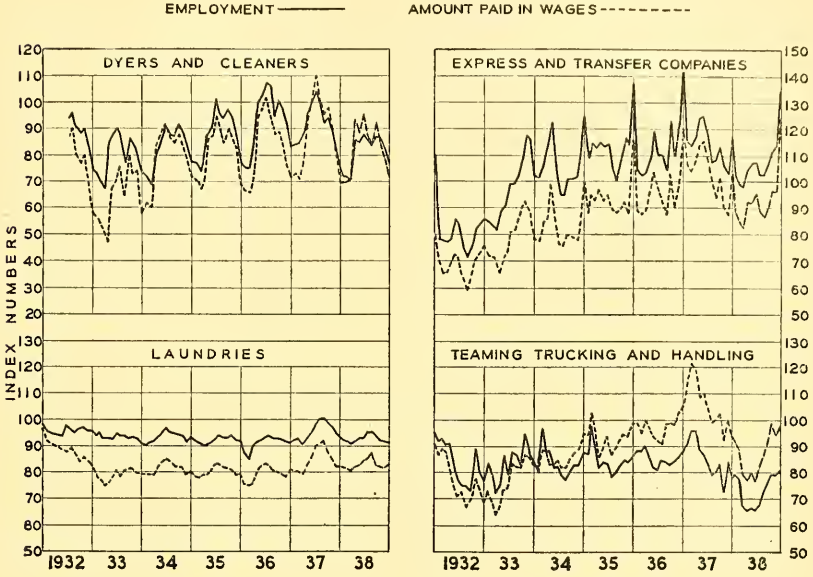


Plate 17

TRENDS OF EMPLOYMENT AND TOTAL WAGES PAID IN 12 MISCELLANEOUS CLASSES OF EMPLOYMENT IN MASSACHUSETTS: 1932-1938 (Concluded)

Base: September, 1931=100



REPORT OF THE DIVISION OF STANDARDS

John P. McBride, *Director of Standards*

Introduction

The division has thoroughly covered all phases of weights and measures activities, as well as its other statutory duties.

In addition to weights and measures laws, we are also charged with the enforcement of the law in relation to quality of coal. This law was originally enacted in 1923 and it is noteworthy that poor quality coal is now very rare in this commonwealth. This is in no small part due to constant and rigid enforcement of this law. This does not mean that coal in this commonwealth is entirely free from impurities. Coal is defined as consisting of the finely comminuted remains of vegetable matter that have been preserved under water from complete decay, and its principal chemical elements are carbon, hydrogen, oxygen and nitrogen of the original vegetable matter with their residual ash and some sulphur and phosphorous. In this natural formation of coal, some extraneous mineral matter and sediment occur and a definite percentage of ash, graded according to the size of coal, is permissible so that coal coming within this classification is not construed as containing an unreasonable amount of impurities.

It is generally recognized that the best method of selling fruits and vegetables, insofar as the consumer is concerned, is by weight. The sale of these commodities by measure presents many possibilities of fraud, as the units are of varying sizes and voids or air spaces may be created, intentionally or unintentionally, according to the ability and desire of the packer, thus making empty space an element of the measure. It is very difficult to secure uniform methods of packing. In sales by weight, method of packing is immaterial and the quantity is definitely and equitably determined. General Laws, chapter 94, section 96, provides that fruits, nuts, vegetables and grain shall be sold at retail by avoirdupois weight or numerical count, but excepts from this law sales in original standard containers, and further defines original standard containers as containers which have been established by the law of this commonwealth or by Act of Congress. It has been our aim to keep at a minimum, standard containers authorized by our legislature. By virtue of the United States Standard Container Act of 1928, authority is placed in the United States Secretary of Agriculture to approve types of standard containers and when so approved these containers must be recognized in both interstate and intrastate commerce. During this past year citrus growers from Florida commenced operations in this commonwealth using federal-approved standard containers as the medium of measurement. This is the first occasion involving the use of these containers to any great extent and its effect is to put at a disadvantage our consumers and merchants operating under Massachusetts law and it tends to break down our law. Prompt and strict enforcement of the law resulted in a minimum use of these containers. I believe I express the sentiment of many other states in the statement that the Standard Container Act is no boon to the consuming public and is of no assistance to states desiring to operate under the so-called sales-by-weight method.

It is the duty of this division to promote accurate weights and measures, not only in relation to consumers, but also to industries, merchants and in every transaction involving sales or purchases by weight or measure. In conjunction with this policy, it has been my aim for some time to correct an unfair practice existing against retail meat dealers. General Laws, chapter 94, section 176, provides that "weight" in a sale of commodities by weight shall mean the net weight of all commodities so sold. It has been the custom for a very long time for wholesale meat packers to sell to retail stores at gross

weights, providing in their contract that certain wrapped meats are sold at weights taken after wrapping. The court has held that this practice is not in violation of the statute above quoted, that the parties are at liberty to contract in this manner if they so desire, or they may contract for net weights. Retail meat dealers, in some instances, protest that they are unable to contract with the packers on a net-weight basis. In order to secure a uniform practice on the basis of sales at net weight, I have corresponded with the Institute of American Meat Packers, which Institute represents ninety-five per cent of the packers, and have received their assurance that they will co-operate with this thought and endeavor to accomplish a change of policy so that all sales to retailers will be on a basis of net weight.

Further illustrative of the scope of activity, an investigation was made in relation to the method of quantity-determination in the sale of aluminum paint. In most instances, this is sold unmixed; the vehicle (liquid) and the pigment, in either powder or paste form, being proportioned by the manufacturer and packed in separate compartments in a two-compartment can. The whole is sold as and for a definite liquid volume, the ratio of liquid to pigment, as set by the manufacturer, to yield, on mixing, the volume represented as the unit of sale. Our investigation showed that in some types of five-gallon cans, the compartment containing the vehicle was not of sufficient capacity to contain the necessary amount of liquid to yield five gallons of mix. These cans were designed for mail-order houses and were removed from the Massachusetts market. The manufacturer was thereafter required to submit samples of new cans to our laboratory for test before distributing the same to paint manufacturers.

Routine inspections at wholesale fish establishments revealed that one-gallon cans used in the sale of shucked shellfish, while apparently of the same diameter, varied slightly in height, causing short measure ranging from one to seven fluid ounces. No identification marks were found on these cans to indicate the source of manufacture, but a check-up with the packers, some of whom were located in other states, disclosed the source of supply of these cans. These cans were immediately removed from this market as well as from the markets of several neighboring states and the manufacturer was required to submit sample cans to our laboratory for test prior to production and distribution. When it is considered that in a single year, 38,590,000 pounds of shellfish were caught and sold in New England alone, at a market value of $3,893,000, it is quite evident that the loss through continued use of these cans would be appreciable.

A cement tester for a large municipality found, upon making compression tests of concrete, variations and discrepancies in a concrete mix purchased on specifications and sought the assistance of this division in solving his problem. He had previously assigned his inspectors to witness the formulating and weighing of the mix, and they were unable to detect any evidence of fraud or deceit. An inspector from this division was assigned to assist the tester and found the difficulty was occasioned by the improper and faulty installation of the hopper scales which were being used to determine the proportionate quantities of sand, gravel and cement. The scales were promptly condemned for repairs.

The use of oil for home heating purposes appears to be increasing and it is consequently necessary to devote more and more time each year to the testing of compartments, tank truck meters and bulk station meters. The tank truck meters are used to determine the quantity of oil delivered to the householders in most instances. On tank truck meter systems having two or more compartments emptying into a common manifold, it was found that by manipulating the compartment line valve, a truck operator could effect inaccurate meter readings. To overcome this situation, it was required that all new tank truck meter systems of this type, built on and after November 1st, 1936, be equipped with selective valve controls; allowing existing tank trucks until June 1st, 1938, to become so equipped. Many of these existing tank truck meter systems were changed over during other repairs within this period so that on

the final date of June 1st, there were very few remaining to be changed over. The regulation now applies uniformly and this type of tank truck meter system must have selective valves in the piping, or the system otherwise made equivalent to single-compartment delivery.

The authority granted under section 18, chapter 98, General Laws, to a certain manufacturing concern, authorizing this concern to seal various types and sizes of milk cans, was suspended. The suspension was occasioned by inspections of milk cans, manufactured and sealed by this company and sold to hardware dealers and dairies in various parts of the commonwealth, which inspections showed that the cans were of insufficient capacity. I later cancelled this suspension after having been convinced that the inaccuracies were caused by a mechanical process of assembling and soldering, rather than by collusion on the part of anyone. Prior to the cancellation of suspension, this concern was required to submit representative samples, for test, to our laboratory, periodically for several months and assurance was received that systematic check would be made of cans from production to prevent a recurrence of an inaccurate condition.

During the year 1938, weights and measures in Massachusetts lost, by death, three men who had achieved distinction in this field; namely, Major Francis Meredith, who was formerly Director of this Division; James A. Sweeney, Sealer of Weights and Measures of the City of Boston, and Charles P. Murray, Sealer of Weights and Measures of the City of Lynn. These three gentlemen spent active lives in weights and measures work and took a keen interest in the Massachusetts Association of Sealers of Weights and Measures, and their passing marks a distinct loss.

The revenue received from all sources showed a decrease of $23,222.73. Of this loss of revenue, the amount of $22,190. represents the decrease in hawker and pedler license fees, which was occasioned in large part by reason of the amendment to the hawker and pedler license law, exempting from license requirements certain dealers in fuel oil who had previously been licensed. Most of these licensees were holders of city or town licenses. This loss was distributed as follows: a decrease of $6,000 in state license fees; $14,257 in city license fees, and $1,933 in town license fees.

Legislation Enacted in 1938

The following legislation affecting the work of the division and the sealers of weights and measures was enacted during the 1938 legislative session:

Chapter 85—amending the law in relation to transient vendors, by providing that applications for transient vendors' licenses shall contain an irrevocable power of attorney for service of process and providing for service of such process on the Director of Standards. This legislation was enacted to facilitate the collection of claims against transient vendors who had left the state and on whom service of civil process was difficult. Chapter 404—an Act establishing standard sizes in connection with the sale and distribution of eggs. This law sets up weight equivalents per dozen for eggs of the sizes designated as large, medium and pullet. It applies, however, only when the eggs are represented as "sized" and does not apply if the eggs are designated as "not sized." It is a step forward as it gives significance to the quantity marking as now required by the law governing the marking of food in package form. The statement "one dozen of large eggs" will mean to the consumer, a definite weight of eggs and a better uniformity in size. Chapter 411—an Act prohibiting and penalizing the use of misleading signs relating to the price of gasoline and other motor fuel. This legislation was petitioned for by the Retail Gasoline Dealers Association, and while it does not directly affect our work and we are not particularly charged with its enforcement, we have been requested to assist in its enforcement because of the fact that we are in close contact with this situation. This co-operation was readily given. The constitutionality of this statute has been challenged and the question is now before the Massachusetts Supreme Court. The statute requires that every retail dealer of motor fuel shall conspicuously mark his pumps or other dispensing equipment with the

price of motor fuel dispensed from that pump or dispensing equipment; defining the maximum size of the price sign as eight inches by ten inches.

Division Publications

Publication of a bulletin was suspended during this year for the reason that certain pending matters not within the control of this division, but of importance to sealers were not completed. Circular letters of instruction on pertinent matters were issued to the sealers as necessity demanded.

Clinical Thermometers

The law provides that the Director of Standards shall prescribe rules and regulations for the manufacture and sale of clinical thermometers. One of the requirements so made is that manufacturers authorized to MASS SEAL clinical thermometers shall report to this office all sales and shipments of clinical thermometers upon which they have affixed the MASS SEAL mark. These reports show that during the past year sales and shipments of 299,567 such thermometers were made, of which 143,611 were sold in Massachusetts, and 155,956 were sold in other states and the Dominion of Canada. These figures show a slight increase over the previous year.

Six manufacturers applied for authority to affix the MASS SEAL on additional types, which authority was granted. One manufacturer had pending at the close of business in 1937, an application for authority to affix the MASS SEAL to his product. This manufacturer declined to submit sufficient instruments for laboratory tests and the authority was not granted.

Laboratory Work

Calibration of Standards for Cities and Towns

Articles	*Tested*	*Adjusted*	*Sealed*	*Condemned*
Avoirdupois weights	1,037	576	1,037	—
Apothecary weights	132	—	131	1
Metric weights	117	10	117	—
Troy weights	36	—	36	—
Apothecary graduates	1	—	1	—
Standard liquid measures	1	—	1	—
Totals	1,324	586	1,323	1

Clinical Thermometers

Description	*Tested*	*Passed*	*Rejected*	*Percent Passed*
Massachusetts seal	2,890	2,834	56	98.06
Unsealed	3,896	3,638	258	93.3
Totals	6,786	6,472	314	

Fees received for testing clinical thermometers amounted to $275.62.

The great majority of unsealed thermometers represents instruments submitted for certification and does not indicate that this number of unsealed thermometers were found for sale in this commonwealth.

Under the law, clinical thermometers offered for sale in this commonwealth must either have impressed thereon, by a duly authorized manufacturer, the MASS SEAL, or be accompanied by a certificate of accuracy from this division. Manufacturers not having the MASS SEAL right frequently submit thermometers for certification for the purpose of sale in this commonwealth.

We also receive annually, a number of unsealed thermometers for certification from a large western university; this being one of the specifications of their contract of purchase.

In one lot of unsealed thermometers tested, a relatively large number of these instruments was found to show air in the bore. On investigation as to the cause of this, it was found that the manufacturer took blank thermometers from seasoned stock, engraved them, and without further inspection, sub-

mitted the same to our office for test. It is not expected that this condition could exist on MASS SEAL thermometers, as authorized manufacturers are responsible for their product and proper factory checkup and inspection is a wise and necessary precaution on their part if they desire to continue their privilege. However, this experience does show what can occur in the absence of law governing the manufacture and sale of clinical thermometers.

Records maintained at this office of clinical thermometers bearing the Massachusetts Seal sold in the United States and Canada, proved to be the sole means of identifying a lot of clinical thermometers reported stolen by a Worcester jobber. An inspector of this division, making routine drug-store inspections, discovered six of these stolen thermometers, which had been purchased from an itinerant instrument salesman, in apparent good faith. Some time later, the Boston police apprehended a man driving a stolen car, who proved to be a person with a lengthy criminal record. Among his effects was found a large quantity of clinical thermometers. An inspector from this office, with the aid of office records, was able to identify these thermometers as those stolen from the Worcester jobber and thus establish the jobber's title to them. The inspector appeared in court as a witness at the trial of the defendant, who pleaded guilty to charges of receiving stolen goods and was given a substantial jail sentence.

Cans, Cartons, and other Containers, Measures, and Weighing and Measuring Devices submitted in connection with Manufacturers' applications for approval or for authority to affix the Manufacturers' Seal thereon.

Article	*Tested*	*Accurate*	*Inaccurate*
Cartons for use in sale of ice cream, etc.	241	240	1
Computing scales	15	11	4
Computing scale charts	33	33	—
Person weighing scales	4	4	—
Parcel post scales	1	1	—
Counter scales	2	2	—
Spring scales	1	—	1
Coin-operated amusement and vending machines	4	2	2
Milk cans	8	4	4
Grease-measuring devices	5	4	1
Liquid measures	1	1	—
Tank truck meter ticket-issuing devices	5	4	1
Selective valve controls	2	2	—
Totals	322	308	14

Miscellaneous Tests

Article	*Tested*	*Adjusted*	*Accurate*	*Inaccurate*
Automatic test measures for gasoline and oil meters, etc.	12	12	12	—
Automatic linear measures	4	3	4	—
Avoirdupois weights	66	5	65	1
Metric weights	1	1	1	—
Liquid measures	5	—	5	—
Dry measures	1	—	1	—
Linear fish rules	21	2	21	—
Shellfish rings	16	—	16	—
Lobster gauges	16	—	16	—
Dead weight gauges	84	84	84	—
Piston gauges	16	16	16	—
Steel tapes	3	—	3	—
Paint containers	3	—	1	2
Shucked shellfish cans	15	—	2	13
Tomato juice containers	2	—	—	2

Miscellaneous Tests—Continued

Article	Tested	Adjusted	Accurate	Inaccurate
Mayonnaise jars	3	—	2	1
Milk jars	2	—	2	—
Grease cans	1	—	1	—
Miscellaneous scales	8	1	1	7
Food in package form	4	—	—	4
Oil containers	3	—	3	—
Skeins of yarn	3	—	2	1
Hypodermic syringes	2	—	2	—
Kindling wood bags	12	—	—	12
Shaving compound	1	—	—	1
Totals	304	124	260	44

Other laboratory work included 57,446 yards of thread remeasured; 288 yards of silk cord measured; 6 samples of coal sized and specific gravity determined.

One of the largest manufacturing companies in this commonwealth, a concern employing several thousands, sought and was granted the assistance of the personnel and equipment of our laboratory in order that a greater degree of accuracy might be attained in the manufacture of precision gauges.

A manufacturer of hypodermic syringes also was assisted in stabilizing the manufacture of his product on a production basis without sacrificing the accuracy or efficiency of his instrument.

An equitable method of measuring silk cord was determined to settle a dispute between a manufacturer and a jobber, both parties accepting the method employed by this division as fair and equitable.

Field Work of Inspectors

Large Capacity Scales

During the past year tests were made of 404 large-capacity scales in one hundred fifteen cities and towns with the aid of the division's test truck.

The scales tested were classified as follows: 356 auto truck type—44 wagon type—4 dormant type. Four of the auto truck scales were the axle-load type designed for two-draft weighing of trucks with a long wheel base or equipped with multiple axles. These scales were tested upon request of the Department of Public Works. The four dormant type scales were tested in a large industrial plant where weight variations were found to be the cause of inventory discrepancies.

Of the 404 scales tested, 208 were found accurate upon initial test; 132 required minor adjustments and 64 required replacements or major repairs; 329 of the scales were found to have a capacity of 40,000 pounds or more, and 341 with platform dimensions ranging from 9x18′ to 10x34′.

The activity of this scale-testing unit was necessarily curtailed by reason of the travel conditions caused by flood, hurricane, and the tidal wave, as well as the necessity of using this truck to transport the division's portable 1000-gallon test tank for testing large bulk storage fuel oil meters.

This testing unit was used during the hurricane crisis as an instrument of mercy in transporting vaccine, serum, insulin and kerosene for lighting purposes to the stricken town of Ware, and was one of the first pieces of motor equipment to enter this town after the storm.

Many of the heavy-duty scales used in weighing solid fuels were severely damaged in the Connecticut Valley by flood and in the southeastern section by tidal wave. Because of these conditions, a great demand for the use of this equipment is anticipated during the coming year.

Oil Meters and Tank Trucks

During the past year, a 1000-gallon portable test tank was added to the equipment of this division. The complement for testing fuel oil meters now

consists of three portable tanks of the capacities of 50-100-and 1000 gallons respectively. The addition of the 1000-gallon test tank has permitted the testing of large bulk storage meters with a greater degree of accuracy. We were able to test these meters at a rate of flow up to 500-gallons per minute.

These testing units were used for testing purposes in ninety-two cities and towns covering an area from the Cape to the Berkshires. A total of 299 tank truck meter systems were tested, 134 of which were found accurate on initial test; 115 were found to require adjustment and 50 were condemned for replacement or major repairs.

It is gratifying to note that in spite of the fact that this report comprises figures for the fiscal year December 1, 1937 to November 30, 1938, and that the following specification "When two or more compartments discharge through a manifold and the discharge lines are equipped with independently-operable discharge valves, the construction shall be such that deliveries shall be accurate whether or not more than one of the valves are partially or fully open," did not take full effect until June 1, 1938, 257 of the 299 tank truck meter systems tested were found to have been equipped in compliance with this specification; 170 of these systems were made to comply by the installation of approved selective valve control units; 46 others were made to conform by the following methods:—either removing or rendering inoperable line valves, cutting partition compartments to make multiple compartment units the equivalent of a single compartment, or the use of a flexible coupling whereby delivery could be made from but one compartment at a time; 41 others were equipped with air eliminators which had been approved by this division as efficient enough to guarantee accuracy within prescribed tolerances under special tests with more than one compartment line open.

There were 217 bulk storage meter systems tested; 115 of which were found to be accurate on initial test; 73 required adjustment and 29 were condemned for replacement of major repairs.

This division is often called upon to settle disputes as to the correct capacity of vehicle tank compartments. During the past year 29 vehicle tank compartments, having a total capacity of 20,420 gallons, were tested to settle such disputes. It was found, in some instances, that the resulting error was due to the fact that the ground on which tanks were loaded, did not present a level surface, and in other instances, it was found that the bulkhead between compartments had shifted, changing the capacity of the compartment affected, but not changing the total capacity of the tank. In another instance, it was found that the bulkhead between two large compartments was not sufficiently rigid to maintain the constancy of the compartment capacity, resulting in variations according to which compartment might be filled first. This division recommends that the ground at the loading racks at bulk stations be level, preferably paved with concrete or some other permanent road material. In the other instances, compliance was required with the specifications providing that the shell and bulkhead shall be of such construction that they will not become distorted under any conditions of liquid lading.

Other activities of the inspectors in the field included:

Number of inspections: Stores, 1,236; Peddlers, 1,072; Transient vendors, 331; Net weight markings, 13,281; Coal certificates, 188; Clinical thermometers, 1530; Total, 17,638.

Weighing and measuring devices: Inspected, 9,416; Sealed, 8,188; Unsealed, 1,228; Tested, 9,045; Accurate, 8,210; Inaccurate, 835.

	Re-Weighings			
Commodity	*Number*	*Correct*	*Under*	*Over*
Coal (loads)	188	30	57	101
Coal (bagged)	442	94	158	190
Packages of food, etc.	12,503	4,889	3,862	3,752
Ice	1	—	—	1
Road building material	3	—	1	2
Totals	13,137	5,013	4,078	4,046

Re-Measurements

Commodity	*Number*	*Correct*	*Under*	*Over*
Alcoholic beverages	232	67	22	143
Fuel oil	61	7	45	9
Linseed oil	3	2	1	—
Firewood (loads)	1	—	—	1
Totals	297	76	68	153

State Institutions

Articles	*Tested*	*Adjusted*	*Sealed*	*Condemned*
Scales	520	96	473	47
Weights	1,780	101	1,755	25
Gasoline pumps and meters	16	8	15	1
Liquid measures	22	—	21	1
Totals	2,338	205	2,264	74

Inspections and tests were made of 75 gasoline and fuel oil meter systems installed under working conditions and submitted for approval under General Laws, chapter 98, section 29. Five of these systems included selective valve control, and two included ticket-issuing devices.

Devices submitted for approval are subjected to rigid inspection to insure that they are of such design, construction and materials that they may reasonably be expected to withstand ordinary usage without impairment of the accuracy of their measurement, or the correct functioning of their operating or indicating parts. The devices are likewise tested under any and all conditions that might arise in commercial use and must test reasonably accurate and constant before approval is granted.

There were twenty-one applicants for certificate of fitness as measurers of leather examined, fifteen of whom passed and six failed to pass. Certificates were issued to the fifteen successful applicants.

One hundred and twenty-two complaints were received and investigated. These complaints covered a vast field of merchandising, ranging from peddling without proper license, to fraud and deceit in the sale of rugs. Several complaints were of short weight and measure: one complaint of short weight was of a shipment of picnic hams packed in Lithuania. Others were of the size and quality of coal. In a majority of the complaints investigated as to quality of coal it was found that the difficulty was with the heating apparatus, improper method of firing the boiler or the purchase of a size coal not adapted for the particular heater, rather than the quality of the fuel. Little difficulty has been experienced with poor quality of coal since 1932, at which time I inaugurated and carried to completion an intensive drive against merchants handling coal containing an unreasonable amount of foreign matter. At that time, several dealers were successfully prosecuted and substantial fines obtained. Because of losses sustained by railroads, both in demurrage and switching charges, railroads have co-operated with this division by refusing to accept for delivery in this commonwealth coal of questionable quality.

All complaints received were promptly investigated to the satisfaction of the complainants. In some instances adjustment or restitution was made and the more flagrant violations brought to the attention of the court.

Prosecutions

The inspectors prosecuted thirty cases resulting in twenty-four findings of guilty; four not guilty, and two pleaded nolo contendere. The court disposed of these cases by imposing total fines of $720; filing one of these cases. Two defendants were given jail sentences of thirty days each, which sentences were suspended and the defendants placed on probation for a six months' period; one case was filed as the defendant had secured a license prior to his initial arraignment.

Nature of Offense	Number of complaints	Convicted	Discharged	Pleaded nolo	Filed	Fines imposed	Suspended sentence	Probation	Appealed
Giving insufficient weight	2	2	–	–	–	$ –	2 [1]	2	–
Attempt to give insufficient weight	3	2	1	–	–	60	–	–	1
Attempt to give insufficient measure	14	11	1	2	–	370	–	2	3 [2]
Fraud and deceit in weighing coal	2	2	–	–	–	–	–	2	–
Possession of false scale with intent to use same	1	1	–	–	–	15	–	–	–
Possession of measuring device not conforming to legal standards	4	4	–	–	–	175	–	1	2 [3]
Interference with an inspector in the performance of his duties	1	–	1	–	–	–	–	–	–
Peddling without a license	1	–	1	–	–	–	–	–	–
Having in his possession another's license with intent to use same	1	1	–	–	–	100	–	–	1 [4]
Conducting transient business without a license	1	1	–	–	1 [5]	–	–	–	–
Totals	30	24	4	2	1	$720	2	7	7

[1] Thirty day House of Correction sentence suspended; placed on probation for six months.

[2] Superior Court sustained finding of lower court but suspended fines and placed defendant on probation for one year in two instances, in third defendant allowed to plead nolo and case filed as defendant had discontinued business.

[3] Superior court sustained finding of lower court, suspended fines; placed one defendant on probation for one year, filed the other as defendant had discontinued business.

[4] Superior Court sustained finding of lower court and reduced fine to $25.

[5] Filed as defendant had secured license prior to arraignment.

Office Work

Weighing and measuring devices approved as to design and construction under section 29, chapter 98, General Laws, included 46 computing scales, 1 parcel post scale, 2 check-weighing scales, 44 computing scale charts and 3 non-computing scale charts to be used with approved scales, 28 retail meter systems, 30 computing meter systems, 2 tank truck meter systems, 4 bulk storage meter systems, 5 selective valve control systems and 3 automatic ticket-issuing devices for use in conjunction with approved tank truck meter systems, and 71 grease-measuring devices.

Under section 18, chapter 98, General Laws, one manufacturer was authorized to seal two sizes of milk cans manufactured by him.

Under section 13, chapter 98, General Laws, five manufacturers of clinical thermometers were authorized to affix the manufacturer's seal upon additional types of clinical thermometers manufactured by them.

Under section 22, chapter 98, General Laws, five new manufacturers were authorized to print the "Massachusetts Approval Statement" on certain cartons of their manufacture to be used as legal measures in the sale of ice cream and certain other specified commodities. There were 22 sizes and types of such cartons approved.

Coin-operated devices approved under section 283, chapter 94, General Laws, included 5 vending machines, 1 machine for amusement only and 2 person-weighing scales.

One grease-measuring device and one computing scale submitted for approval were disapproved.

Under section 3, chapter 101, $4500 in cash was deposited and surety bonds amounting to $171,500 filed with the Director by applicants for transient vendor licenses. These deposits and bonds are subject to legal claims arising out of business conducted under such licenses. As shown by the detailed financial statement which concludes this report, the total of $115,848.87 was received from all sources, including fees for hawker and peddler licenses and transient vendor licenses, transfer fees, peddlers' license plates and badges, and fees for testing clinical thermometers.

Twenty-two individuals and firms were given hearings upon complaints of violations of the law governing the marking of food in package form, labeling of bread, licensing of hawkers and pedlers, and for minor infractions of the laws pertaining to weights and measures.

Licenses

Transient Vendors

There were 352 transient vendor licenses issued, for which $8,800 in fees were received. Ten persons were prosecuted for failure to obtain necessary licenses. Under the provisions of this law, exemption from license requirement is granted to persons assessed on stock in trade in the city or town where the transient business is conducted. This exemption has been in the law over a long period of years and probably was made part of the law to cover the technicalities of the language which might involve in license requirement a permanent merchant who engaged in temporary business in another establishment in the same town. In actual practice, however, this exemption has been used as a means of avoiding the license requirement, which has resulted in considerable dissatisfaction to enforcement officials.

An amendment to this law is to be presented to the incoming legislature by a group of selectmen, to provide that the exemption shall run only to persons domiciled and assessed on stock in trade in the city or town where the transient business is to be conducted.

Hawkers and Pedlers

There were 4,718 hawker and pedler licenses and 1,156 transfers of licenses for which fees were received. These figures compare with 5,488 licenses and 1,492 transfers in the preceding year; a decrease of 770 licenses and 336 transfers. This decrease in number of licenses was due to the amendment in the license law removing from license requirements, certain hawkers and pedlers of fuel oil. In addition to the above licenses, 333 special licenses as hawker and pedler were issued to disabled veterans. No fee is received on this class of license.

Over a period of five years, this class of licensee has shown a steady decrease, dropping from 479 in 1934 to 333 in the present year, a decrease of 146. This decrease may be accounted for in part by changes made in the provisions of law governing this class of license, restricting the privileges of the license.

In the enforcement of both the transient vendor and hawker and pedler license laws, we received assistance from and co-operated with the Boston Better Business Bureau and the local chambers of commerce throughout the state.

Educational and Co-operative Activities

During the year we received co-operation from officials of this and other states and in return extended our co-operation to such officials as well as to manufacturers and business organizations.

Through the courtesy of the Consumers Institutes of Massachusetts, the Director was able, from time to time, to give radio talks on weights and measures. On invitation, the inspectors and the Director gave talks to business, educational and civic organizations.

The Director attended the National Conference of Weights and Measures Officials of the United States at the National Bureau of Standards at Washington, and with the inspectors attended the Annual Conference of Sealers of Weights and Measures of this commonwealth at New Bedford.

A regional conference of state officials having authority to approve types

of weighing and measuring devices was held to consider several matters immediately pressing and on which uniform action was desired.

Local Sealers of Weights and Measures

The following summary of work performed by local Sealers of Weights and Measures is compiled from the annual reports which they are required by section 37, chapter 98, General Laws to file with the Director of Standards between the first and tenth of January in each year. The sealer in the town of Agawam failed to perform this statutory duty, and therefore the work performed by him cannot be included in this summary.

Summary of Local Sealers' Work

Article	*Adjusted*	*Sealed*	*Not Sealed*	*Condemned*
Scales				
Platform, over 10,000 lb.	275	1,424	38	107
Platform, 5,000 to 10,000 lb.	126	1,126	16	29
Platform, 100 to 5,000 lb.	3,766	18,470	685	664
Counter, 100 to 5,000 lb.	203	1,587	52	52
Counter, under 100 lb.	1,563	12,834	253	263
Beam, 100 to 5,000 lb.	123	1,788	59	60
Beam, under 100 lb.	57	603	9	6
Spring, 100 to 5,000 lb.	179	4,003	37	182
Spring, under 100 lb.	3,497	25,941	222	1,080
Computing, 100 to 5,000 lb.	39	264	12	11
Computing, under 100 lb.	3,787	21,594	176	1,124
Person weigher (slot)	116	4,569	27	221
Prescription	218	1,858	21	37
Jewellers'	12	412	1	12
Totals	13,961	96,473	1,608	3,848
Weights				
Avoirdupois	4,004	106,012	860	532
Apothecary	362	22,990	12	474
Metric	207	9,649	33	81
Troy	89	4,756	11	57
Totals	4,662	143,407	916	1,144
Capacity Measures				
Vehicle tanks (Compartments)	107	1,346	—	3
Liquid measures over 1 gallon	22	6,402	7	113
Liquid measures	22	19,148	108	403
Ice cream cans	—	15	—	35
Glass graduates	—	61	—	47
Milk jars	—	850	—	8
Oil jars	—	3,503	—	92
Dry measures	—	685	—	10
Fuel baskets	—	722	—	11
Totals	151	32,732	115	722
Automatic Liquid-Measuring Devices				
Gasoline pumps	408	4,103	980	235
Stops on pumps	739	19,154	—	—
Gasoline meter systems	3,049	22,096	229	1,039

Oil pumps	1,068	6,552	5,619	143
Tank truck meter systems	621	3,101	63	144
Bulk station meter systems	113	738	25	27
Kerosene pumps	90	1,665	81	43
Molasses pumps	4	81	7	5
Grease measuring devices	470	4,168	363	133
Totals	6,562	61,658	7,367	1,769
Linear Measures				
Yard sticks	—	5,341	—	138
Tapes	—	110	—	2
Cloth-measuring devices	—	748	—	46
Leather-measuring devices	41	252	—	2
Totals	41	6,451	—	188
Taximeters	33	1,488	—	62
Miscellaneous	—	16	—	—
Grand Totals	25,410	342,225	10,006	7,733

Fees	
Sealing fees collected	$55,727.36
Adjusting charges	3,933.05
Total collected	59,660.41

Re-weighings and Re-measurements

Commodity	*Number of Reweighings, etc.*	*Correct*	*Under*	*Over*
Beans	8,542	6,240	1,171	1,131
Bread	35,506	20,210	3,610	11,686
Butter	33,465	23,673	5,151	4,641
Charcoal (in paper bags)	708	593	13	102
Coal (in paper bags)	10,513	6,916	794	2,803
Coal (in transit)	1,216	386	152	678
Coke (in paper bags)	619	517	28	74
Confectionery	8,029	6,612	238	1,179
Dry Commodities	26,413	20,673	1,296	4,444
Dry goods	38	37	1	—
Flour	8,322	5,920	781	1,621
Fruits and vegetables	9,106	6,282	1,245	1,579
Grain and feed	1,045	748	161	136
Hay	98	25	38	35
Ice	751	307	38	406
Kindling wood (in paper bags)	3,825	3,810	10	5
Lard	4,777	4,307	94	376
Liquid commodities	7,075	5,839	695	541
Meats and provisions	14,819	12,034	1,212	1,573
Potatoes	11,294	6,390	1,461	3,443
Wood (cord)	266	231	16	19
Wood (kindling)	149	90	30	29
Miscellaneous	643	493	60	90
Totals	187,219	132,333	18,295	36,591

The annual reports also show the following re-weighings, re-measurements of commodities and test of weighing and measuring devices by the local sealers for municipal departments: — 6,005 tons of coal; 131 tons of stone; 134 loads of grain and feed; 25 loads of junk; 33,726 gallons of gasoline; 89,816 gallons

of fuel oil; 100,539 gallons of road oil; 1,437 yards of gravel, cinders and loam; 12 loads of kindling wood; 435½ cords of wood; 75 scales; and 7 gasoline and oil-dispensing units.

Local sealers inspected 8,694 clinical thermometers; 1,444 coal certificates; 1,571 ice scales; 1,028 junk scales; 6,498 pedlers' licenses; 5,178 pedlers' scales; 65,839 markings of food packages; 19,337 weight statements on bread loaves; 6,651 ice cream cans; 5,762 wholesale milk cans; 21,978 milk jars; 28,459 lubricating-oil jars; 10,250 paper cartons; 11,696 markings on fuel bags; 417 transient vendors; and 28,302 miscellaneous items; tested 2,707 berry baskets, 554 climax baskets; 1,107 paper or fibre cartons, 6,406 milk jars; 4,867 lubricating-oil jars; 840 standard, farm-produce boxes; 99 United States standard barrels; 2,419 re-tests of gasoline and oil-measuring devices after sealing; and made 33,871 miscellaneous inspections and tests, including store inspections, investigation of complaints received, re-tests of weighing and measuring devices after sealing, etc.

Prosecutions by Local Sealers.

Nature of Offence	Number of complaints	Convicted	Discharged	Pleaded nolo	Filed	Defaulted	Fines imposed	Sentences suspended	Probation	Appealed
Giving insufficient weight	16	14	2	–	1	–	$295	–	1	1*
Giving insufficient measure	10	9	–	1	1	–	290	–	–	1
Possession of false scale	5	4	1	–	1	–	65	1	–	–
Possession of false measure	2	2	–	–	–	–	15	1	1	–
Using unsealed scales	1	1	–	–	–	–	5	–	–	–
Failing to issue certificate in sale of coke	2	2	–	–	–	–	110	–	–	1
Failing to issue certificate in sale of fuel oil	1	1	–	–	–	–	5	–	–	–
Failing to provide scale for ice truck	1	–	1	–	–	–	–	–	–	–
Failing to post retail price list on vehicle	1	1	–	–	–	–	10	–	–	–
Exposing for sale bread not properly marked	3	3	–	–	–	–	175	3	3	–
Peddling without a license	39	36	1	–	7	2	430	1	1	–
Peddling on the license of another	2	2	–	–	–	–	30	–	–	–
Furnishing minors merchandise to sell without a license	3	1	2	–	1	–	–	–	–	–
Conducting transient business without a license	9	6	2	–	–	1	140	–	–	–
Interfering with a sealer in the performance of his duties	1	–	1	–	–	–	–	–	–	–
Totals	96	82	10	1	11	3	$1,570	6	6	3

* Nol Prossed by District Attorney.

Financial Statement of the Division of Standards.

Receipts	
1,088 State (hawkers' and pedlers') license fees	$ 54,400.00
2,160 County (hawkers' and pedlers') license fees	18,766.00
580 City (hawkers' and pedlers') license fees	15,033.00
890 Town (hawkers' and pedlers') license fees	11,451.00
352 Transient Vendors' license fees	8,800.00
1,156 Transfer fees	1,156.00
Total receipts from license fees	$109,606.00
Fees received for licenses not issued	273.00
Fees received for testing clinical thermometers	275.62
Received for pedlers' plates and badges	5,158.50
Total receipts	$115,313.12
Court Fines for violations of hawkers and pedlers laws	533.75
Witness fees	2.00
Total	$115,848.87

Payments

To State Treasurer:		
1,088 State License fees	$54,400.00	
2,160 County License fees	2,160.00	
580 City License fees	580.00	
890 Town License fees	890.00	
352 Transient Vendor License fees	8,800.00	
1,156 Transfer fees	1,156.00	
Fees received for licenses not issued	273.00	
Fees received for testing clinical thermometers	275.62	
Pedlers plate and badge money	5,158.50	
Total payments to State Treasurer		$ 73,693.12
To County Treasurers	$ 16,606.00	
To City Treasurers	14,453.00	
To Town Treasurers	10,561.00	
Total paid to County, City and Town Treasurers		41,620.00
Total payments		$115,313.12
Total paid direct to State Treasurer for court fines		533.75
Total paid direct to State Treasurer for witness fees		2.00
		$115,848.87

SUMMARY

Appropriation, personal services	$32,800.00	
Expended	32,797.00	
Unexpended balance		$ 3.00
Appropriation, general expenses	$13,173.96	
Expended	12,745.56	
Unexpended balance		$ 428.40
Total unexpended balance		$ 431.40
Total income to the Commonwealth from licenses		$ 73,693.12
Total expenditures		45,542.56
Excess of income over expenditures		$ 28,150.56

REPORT OF THE DIVISION OF OCCUPATIONAL HYGIENE

Manfred Bowditch, *Director*

A further substantial increase in the number of calls for the services of the Division of Occupational Hygiene is found in the records of the fiscal year just closed, routine service items having totalled 508 for the period. Four years have now passed since the division opened its doors, a long enough time to warrant publication of comparative figures which indicate the steady growth of the work and its constantly increasing usefulness to the industrial community. Total routine service calls for the four years have been as follows:

1935—187; 1936—296; 1937—365; 1938—508.

The items making up these totals represent the day-to-day work of the field and office staff. They vary from responses to relatively simple questions on matters of industrial health to investigations of hazardous conditions often requiring weeks and sometimes months to complete the study. Additional to this work has been the continuance of the Industrial Chemical Survey Project by the staff and its W.P.A. assistants and the co-operation accorded to educational, research and governmental organizations described on later pages.

Personnel.—In noting the increased work of the division, attention should be called to the fact that it has been accomplished with no enlargement of the regular staff of five with which a beginning was made in the fall of 1934. Funds for the employment of a physician and a laboratory assistant were sought during the year without success. Both are greatly needed and these minimal additions to the staff will again be sought. The part-time W.P.A. workers assigned to the laboratory have continued to be an invaluable aid in a situation which would otherwise have been seriously crippling. They have varied in number, six such workers (four men and two women) as well as five female National Youth Administration typists, being employed at the close of the year. It is gratifying to note that eight of the relief workers allocated to this office have now secured private employment.

Quarters.—The division continues to occupy the first floor, basement and one second floor room at 23 Joy Street, Boston. These quarters are adequate to the small staff but storage space is an ever increasing problem.

Equipment.—Major additions to the field and laboratory equipment during the year were (1) a benzol indicator of the combustible gas type, (2) a stationary electric precipitator and control apparatus installed in the dust and fume chamber, and (3) a combined blower and vacuum pump unit with pressure and vacuum lines to several points in the laboratory.

Reference Library.—The division's substantial and now adequately indexed reference library continues to be a tool of first importance to the staff and to the increasing number of industrial and research workers who find occasion to consult it. The making of typed copies of reference works not otherwise obtainable continues. This work of the Youth Administration typists is currently devoted to copying a translation of a foreign work of first importance on poisonous industrial gases.

Routine Work

The nature of the division's routine work differs little from year to year. Field investigations and determinations of atmospheric dust and fume concentrations are followed by laboratory work often even more time-consuming, and on these findings are based its engineering recommendations for control of conditions found hazardous to health. Requests for a seemingly endless variety of information on subjects of industrial health have this year about equalled the actual factory studies in total number. The policy of co-opera-

tion with governmental and research agencies outside the state has brought much valuable information as recompense for effort expended in responding to 92 inquiries from other states, the federal government and foreign countries.

Analysis of the year's total of 508 items of routine work once more shows employers, governmental and insurance agencies to be the principal *sources* of calls for service. Substantial increases over last year in the number of requests from medical and labor sources are gratifying indications that two groups of the community to which this work should be of major importance are becoming increasingly aware of a potential source of help. The routine work self-initiated by the division is mainly in the nature of plant studies made to throw light on similar problems elsewhere. More of this work has been done than heretofore and there has been a substantial increase in follow-ups.

Self-initiated	105	Industrial workers	15
Employers	78	Industrial chemical mfr.	10
Governmental	67	Labor organizations	10
Insurance	56	Protective equipment mfr.	8
Physicians, hospitals	44	Employer associations	4
Follow-up	41	Attorneys	1
Education and research	39	Publishers	1
Intradepartmental	23	N.O.C.	6
Total			508

Classification by *nature of the industry* once more shows the dusty granite and foundry trades heading the list. The high granite figure is due to the co-operative work of this division with the Division of Industrial Safety mentioned later in this report. Inquiries dealing with a variety of industries make up the greater part of the group not otherwise classified. A total of 163 different lines of manufacture have now been investigated by this office.

Granite mfg.	73	Woolen, worsted textiles mfg.	4
Foundry	27	Abrasives mfg.	3
Rubber products mfg.	24	Cutting dies mfg.	3
Electrical products mfg.	22	Printing	3
Shoe mfg., repairing	18	Tanning	3
Felt hat mfg.	14	Wood heel covering	3
Metal products mfg.	13	Automobile, garages	2
Chemicals mfg.	11	Automobile body mfg., repg.	2
Food products mfg.	9	Building construction	2
Artificial leather mfg.	8	Can mfg.	2
Automobile mfg., repairing	8	Educational institutions	2
Machinery mfg., N. O. C.	8	Fur cleaning	2
Painting	8	Granite quarrying	2
Paper products mfg.	8	Housekeeping	2
Paving products mfg.	8	Mercantile, N.O.C.	2
Paint, varnish, lacquer mfg.	7	Mining, N.O.C.	2
Rock crushing	7	Pipe mfg.	2
Rayon yarn mfg.	6	Refrigeration	2
Dry cleaning	5	Rock quarrying	2
Instrument mfg.	5	Shipping	2
Storage battery mfg., repg.	5	Silverware mfg.	2
Asbestos products mfg.	4	Tool mfg.	2
Dye mfg.	4	Water works	2
Metals refining	4	Welding	2
Motor transportation	4	Wire cable mfg.	2
Newspaper publishing	4	Aircraft mfg.	1
Office work	4	Armory	1
Shipbuilding	4	Blueprinting	1
Shirt mfg.	4	Brewing	1
Soap mfg.	4	Building wrecking	1

Button mfg.	1	Real estate	1
Ceramics mfg.	1	Restaurant operating	1
Cordage mfg.	1	Roof coverings mfg.	1
Cotton textiles finishing	1	Ship repairing	1
Cutlery mfg.	1	Straw hat mfg.	1
Dyeing	1	Street railway	1
Electrotyping	1	Structural foundation work	1
Fertilizer mfg.	1	Structural insulation	1
Firearms mfg.	1	Structural steel fabrication	1
Fuller's earth, production of	1	Telephone	1
Furniture storage	1	Textile mfg.	1
Gasoline station	1	Toy mfg.	1
Glass products mfg.	1	Upholstering	1
Jewelry mfg.	1	Valves, injectors mfg.	1
Laundry	1	Waste reclaiming	1
Lithograph mfg.	1	Watch, clock, mfg., repairing	1
Mattress mfg., repairing	1	Wood heel mfg.	1
Optical goods mfg.	1	Wood preserving	1
Paint, varnish, lacquer sales	1	Wood products mfg.	1
Paper mfg.	1	Woodworking	1
Patent leather mfg.	1	N.O.C.	89
Pump mfg.	1		
Total	523		

Analysis by *operations* gives a total of 156 distinct types of industrial work, as well as a number of groups not readily classified. No less than 53 of the following operations are new with this year's list, a total of 287 operations having been considered in the four years of the division's work.

Granite cutting	74	Printing	4
Foundry work, dusty, N.O.C.	24	Rayon xanthating	4
Dusty, N.O.C.	13	Rayon yarn spinning	4
Laboratory work, N.O.C.	12	Shoe cementing, pyroxilin	4
Rubber cementing	12	Soldering	4
Paint, lacquer spraying	11	Wood heel covering	4
Metal cleaning, degreasing	10	Abrasive blasting	3
Rubber compounding	10	Asbestos weaving	3
Electric welding	9	Battery plate casting	3
Fabric coating	9	Battery plate pasting	3
Fumigating	9	Fur cleaning	3
Felt hat shrinking	8	Garment spotting	3
Paint, lacquer mixing	8	Machinery cleaning	3
Asphalt mixing	7	Paint, lacquer dipping	3
Rock crushing	7	Painting, brush	3
Automobile repairing	6	Storage battery assembling	3
Dope mixing	6	Acid dipping	2
Electroplating	6	Automobile operation	2
Paint, lacquer removing	6	Building insulating	2
Chemicals mixing	5	Chemicals making, N.O.C.	2
Condenser, coil impregnating	5	Clerical work, N. O. C.	2
Felt hat pouncing	5	Cotton carding	2
Garment cleaning	5	Dye handling	2
Paper coating	5	Excavating	2
Rubber curing	5	Fabric cleaning	2
Collar pressing	4	Felt hat dyeing	2
Dye mixing	4	Lead casting	2
Felt hat forming	4	Lead melting	2
Foundry moulding	4	Leather buffing	2
Fur blowing	4	Leather toggling	2
Gasoline engine operating	4	Linotyping	2
Metal grinding	4	Multigraphing	2

Refrigeration installing	2	Leather pressing	1
Rubber cement mixing	2	Lithographing, N.O.C.	1
Shoe treeing	2	Lubricants mixing	1
Soap making, N.O.C.	2	Mail sorting	1
Tumbling, barrel	2	Mattress filling	1
Upholstering	2	Metals cutting	1
Wood sanding	2	Metals machining	1
Wool, worsted yarn spinning	2	Metals melting, N.O.C.	1
Acid dipping	1	Metals pouring	1
Annealing	1	Metals spraying	1
Asbestos carding	1	Meter filling	1
Asbestos compounding	1	Mica cleaning	1
Asbestos grinding	1	Mica cutting	1
Asbestos yarn spinning	1	Monotype casting	1
Battery charging	1	Naphthalene dipping	1
Bleaching	1	Office, N.O.C.	1
Blueprinting	1	Photoengraving	1
Brewing, N.O.C.	1	Pipe fitting	1
Bronze welding	1	Radium dial painting	1
Cable impregnating	1	Rayon mixing	1
Cadmium coating	1	Rayon yarn washing	1
Cadmium melting	1	Resin machining	1
Castings cleaning	1	Rock blasting	1
Ceramics glazing	1	Rock drilling	1
Concrete mixing	1	Rock wool blowing	1
Container filling	1	Rubber dusting	1
Cotton spinning	1	Sandpaper making	1
Crepe sole cementing	1	Shoe cleaning	1
Enamel dipping	1	Shoe making, N.O.C.	1
Felt hat cleaning	1	Solder grinding	1
Fiber softening	1	Sole stiffening	1
Food preparing	1	Steam plant operating	1
Foundry cleaning	1	Steel hardening	1
Foundry shakeout	1	Stereotyping	1
Fur mixing	1	Stevedoring	1
Galvanizing	1	Straw hat finishing	1
Gasoline station attending	1	Tea packing	1
Glazing, window	1	Typewriting	1
Granite polishing	1	Varnishing	1
Heat treating	1	Vegetable ivory cutting	1
Heating equipment operating	1	Warehousing	1
Jute spinning	1	Wood impregnating	1
Laundering	1	Wood shaping	1
Lead burning	1	Wool fulling	1
Leather handling	1	Wool scouring	1
Leather japanning	1	N.O.C.	95
Total			585

Silica dust again far outstrips all other agents in the list of *harmful materials*, accounting this year for over one-fifth of all routine inquiries. Lead and benzol continue to rank high. The total of 98 items in the following list compares closely with last year's 97 and brings the four-year total, eliminating duplications, to 178.

Silica dust	131	Mercury, mercury compounds	13
Lead, lead compounds	42	Methanol	13
Benzol	36	Skin irritants, N.O.C.	13
Fumes, N.O.C.	23	Inorganic dusts, N.O.C.	11
Carbon monoxide	18	Organic dusts, N.O.C.	10
Carbon tetrachloride	18	Toluol	10
Gasoline, naphtha	15	Trichlorethylene	10

Cyanides	9	Arsenic, arsenic compounds	1
Chlorinated diphenyls	8	Bismuth	1
Heat	8	Butyl alcohol	1
Solvents, N.O.C.	8	Calcium fluoride	1
Acetone	7	Carbon dioxide	1
Chlorinated naphthalenes	7	Chlorine	1
Welding fumes	7	Chloroethyl-methyl-sulfide	1
Carbon bisulfide	6	Cocobolo dust	1
Methyl bromide	6	Cutting oils	1
Cadmium, cadmium compounds	5	Dichloro-difluoro methane	1
Dichlorbenzene	5	Dinitro-cresol	1
Ammonia	4	Ethylene dichloride	1
Asbestos dust	4	Eye irritants, N.O.C.	1
Ethyl alcohol	4	Gum arabic	1
Hydrogen sulfide	4	Hydrogenated naphthalenes	1
Petroleum products, N.O.C.	4	Illumination, faulty	1
Sulfur chloride	4	Jute dust	1
Xylol	4	Magnesium	1
Chlorinated phenol	3	Manganese, manganese comp.	1
Chromic acid, chromates	3	Methyl acetate	1
Dyes	3	Methyl chloride	1
Infection	3	Mineral oil	1
Methyl cellosolve	3	Mineral spirits	1
Mica dust	3	Naphthalene sulfonic acid	1
Nitrogen dioxide	3	Noise	1
Rock wool dust	3	Octyl alcohol	1
Wool dust	3	Paradichlorbenzene	1
Zinc, zinc compounds	3	Phenyl hydrazine	1
Amyl acetate	2	Phosphorus	1
Cashew nut oil	2	Potassium ferricyanide	1
Cotton dust	2	Potassium permanganate	1
Formaldehyde	2	Radiant energy	1
Hydrochloric acid	2	Sodium carbonate	1
Leather dust	2	Soy bean oil	1
Naphthalene	2	Sulfuric acid	1
Radium	2	Synthetic resin dust	1
Rubber accelerators	2	Tar	1
Talc	2	Tea dust	1
Air pressure	1	Turpentine	1
Alkalies, N.O.C.	1	Vegetable ivory dust	1
Ammonium chloride	1	Wood dust	1
Amytal	1	N.O.C.	50
Aniline	1		
Total			613

A total of 480 visits to industrial establishments were made by members of the staff in connection with this routine work. Field determinations of fume or dust concentrations totalled 267 and laboratory determinations 813. Field and laboratory work in connection with special activities is apart from the above and will be so recorded.

Natural Sandstone Grinding Wheels.—As stated in last year's report, it is common knowledge that the use of natural sandstone wheels for various grinding purposes was formerly the rule, rather than the exception, and that the silicosis hazard which resulted from inhalation of the free silica dust arising from such operations attached to the occupation of grinding an ill reputation which persists to the present day despite the fact that artificial abrasive wheels, containing little if any free silica, are now the rule for production grinding operations.

The investigation undertaken in 1937 to determine the extent to which natural sandstone grinding wheels are still used for production grinding in Massa-

chusetts industries was completed during 1938. Of the 17 plants, employing 57 grinders, found to be using these wheels, 8 were subjected to further study including determinations of atmospheric dust concentrations.

The two principal industries using sandstone wheels for production grinding are those manufacturing machine knives and cutting dies. The stone is furnished in two shapes, the plain grinding wheel and the cup stone or "dumpy". The former, as commonly purchased, is 6 feet in diameter and 6 to 8 inches wide. The cup stone, as the name implies, is shaped like a cup with very thick walls and it is the annular side surface that is used for grinding.

Table I shows the concentrations of dust to which grinders are exposed during normal operations. It is general practice, without exception, to flow large quantities of water over the stone during use. The maximum permissible concentration for dust of this nature, based on our present knowledge, is 5 million particles per cubic foot of air. In only one plant (No. 1) did the concentration exceed this value and there by only a slight margin. In that plant the grinding of faces and bevels of machine knives was done on a machine which utilized the peripheral surface of a plain grinding wheel, whereas in other plants of this type similar grinding was done on cup stones.

Table 1. Dust Counts During Normal Wet Grinding on Sandstone Wheels

Plant No.	Product	Nature of Grinding	Feed	Dust Count (Million Particles per Cubic Foot)	Remarks
1	Machine knives	Faces and edges	Mechanical	6.6	
	Machine knives	Bevels	Mechanical	7.7	
2	Machine knives	Rough grinding	Hand	4.4	
	Machine knives	Bevels	Mechanical	4.4	
	Machine knives	Flat Grinding	Mechanical	4.1	
3	Files	Flat grinding	Mechanical	1.0	
	Files	Flat grinding	Mechanical	1.8	
4	Chisels	Sharpening	Hand	3.4	Equipped with semi-local exhaust besides wet grinding.
	Chisels	Sharpening	Hand	3.6	
5	Cutting dies	Sharpening	Hand	6.3	Cold weather
	Cutting dies	Sharpening	Hand	3.0	Warm weather
6	Cutting dies	Sharpening	Hand	1.8	
	Cutting dies	Sharpening	Hand	4.3	
7	Cutting dies	Sharpening	Hand	1.9	
	Cutting dies	Sharpening	Hand	2.2	
8	Cutting dies	Sharpening	Hand	3.0	
			Average	3.7	

Due to uneven wear of the grinding surface of plain wheels, the stone gradually develops high and low sections and then must be trued up or "faced". This is usually done by holding the end of a slender iron rod in close contact with the grinding surface while moving the rod end from one edge to the other of the stone. This rapidly shaves off thick sections of the stone and produces very large quantities of dust. The actual operation does not often exceed one minute and is usually even less, but the dust cloud may persist for a considerable period thereafter.

Measurements of concentrations of dust during this operation were made in 3 plants manufacturing cutting dies. The results are set forth in Table II. In plants making machine knives, the facing of stones is a relatively less frequent operation because the bulk of the grinding is done on cup stones which do not require such treatment.

TABLE II.—DUST COUNTS FOLLOWING FACING OF SANDSTONE WHEELS IN CUTTING DIE PLANTS.

Plant No.	FREQUENCY OF OPERATION	Sampling Time (Minutes)	Time of Sampling (Minutes after Facing)	Dust Count (Million Particle per Cubic Foot)s
5	Several times per day.	5	0– 5	91
		12	0–12	40
		13	0–13	43
		10	14–24	9.8
7	Several times per day.	9	0– 9	39
		21	0–21	150
		15	13–28	18
		39	0–39	20
		35	0–35	22
6	Once each 2 to 3 days.	5	0– 5	65
		8	6–14	40
		8	14–22	20

The essential information to be gleaned from Table II is summarized in the estimated averages given in Table III, which shows a typical situation resulting from facing a wheel under conditions where general ventilation is not good, as in winter weather.

TABLE III.—TYPICAL AVERAGE DUST CONCENTRATIONS AFTER FACING WHEELS.

Time Period Immediately Following Facing (Minutes)	Average Dust Concentrations During Indicated Time Period (Million Particles per Cubic Foot)
0–10	40
0–20	30
0–40	20

It is apparent that the average concentration to which a workman is exposed throughout the day is dependent on the number of times the stone is faced. This varies widely, but is at least two times per day and usually not over 5 to 6 times per day. Obviously, if the workmen is exposed to concentrations of 30 million particles for four half-hour periods daily and 4 millions for the rest of the day, the average concentration for the day will be around 10 millions and this is estimated to be the average exposure in cutting die plants under winter conditions. In warm weather, when windows are open, it is probably not greater than 5 millions. A completely enclosed room of small dimensions retards dilution of the dust. When more than one grinder works in the same room, conditions are markedly worse, since each is exposed to effects of dust from the facing of his fellow workman's wheel in addition to his own.

Where the grinding is segregated in a separate small room or where two or more grinders work in close proximity to each other, filter respirators should be worn for a short period after a grinding wheel is faced. The time period during which such protection should be exercised need not be greater than a half hour if means for forced ventilation is provided. It is further recommended that, where it is necessary to face the stone oftener than once a day, general ventilation be furnished sufficient to provide about two air changes per minute for the enclosure in which the equipment is operated. This ventilation should be operated for a period of one-half hour following facing of grinding wheels.

Granite Dust Control.—With the completion of the division's Granite Dust Control Project in Quincy in the fall of 1936, the practicality of relatively inexpensive dust exhaust in the small cutting sheds typical of the industry in this state had been proved. The next step was application of these findings and 1937 saw orders issued by the department's Division of Industrial Safety for the installation of exhaust ventilation on all hand pneumatic tool operations ("bankers") in the Quincy area.

The problem of securing a compliance with these orders which would achieve the results sought with a minimum of avoidable expense brought home the

need of co-operation between the two divisions and a fine degree of teamwork was developed and carried through the year 1938. Further study of the suction devices commercially available, to establish their potentialities and limitations, was followed by the promulgation of minimum standards of performance which all installations would be expected to meet. Basically, these were the following:

1. A suction device should be provided at each banker for preventing the escape of harmful quantities of dust into the working atmosphere. A harmful quantity of granite dust is defined as any concentration of more than 10 million particles of such dust per cubic foot of air.
2. For suction devices at bankers where hand pneumatic tools are used and in which the tool is independent of and outside of the exhaust hood, an air velocity of at least 200 linear feet per minute should be maintained at a point 7 inches from the center of the face of the hood. The hood should be easily movable and should be kept within 6 inches of the point of the tool at all times.
3. The factor determining the air velocity at a given distance from the hood is volume of air flowing into the hood. To fulfill the requirements of Paragraph 2 by means of a plain unobstructed hood, it will be necessary to withdraw not less than 540 cubic feet per minute.
4. To fulfill these requirements by means of a flanged hood, it will be necessary to withdraw not less than 400 cubic feet per minute. This type of hood is therefore recommended. The flange may be of metal, stiff rubber or other suitable material, should be approximately 3 inches wide and attached to the two sides and top of the hood, as shown in Figure 1.

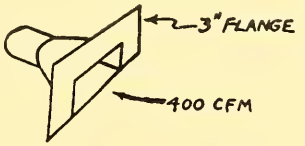


Fig. 1. Recommended hood.

Further detailed recommendations for pipe sizes and fittings, fan and motor sizes, were included in an information circular supplied to all establishments concerned. Following the circulation of this material, contact was made with each sheet metal contractor bidding on any of the work to ensure against misunderstanding as to what was required. The first installations were carefully checked immediately after construction and below-standard workmanship brought to light. None of the work done by these principal contractors required anything to be undone. In three cases out of about 40, the employer hoped to save money by constructing flexible exhaust units of his own design. In all three cases the result was a definitely inferior piece of apparatus from the standpoint of convenience, and in one of the three cases was absolutely unacceptable.

At the year's end the situation in Quincy was as shown in Table IV.

TABLE IV.—BANKER EXHAUST EQUIPMENT, QUINCY GRANITE SHOPS, NOVEMBER, 1938.

	Shops		Bankers	
	Number	Per Cent	Number	Per Cent
Installed prior to 1938	7		27	
Installed during 1938	27		86	
Installed at close of 1938	34	61.8	113	70.6
Arrangements for installation under way	7		33	
	41	74.4	146	91.2

In addition to the work on banker dust control, attention was also directed to numerous exhaust systems on granite surfacing machines that were operating inefficiently. Many shops were ready and anxious to improve these with a view to reduced power costs as well as better dust control. An illustrated information circular on this subject issued during the year made the following points:

1. A suction device should be provided for each surfacing machine for preventing the escape of harmful quantities of dust into the working atmosphere. A harmful quantity of granite dust is defined as any concentration of more than 10 million particles of such dust per cubic foot of air. (For practical purposes it may be assumed that, if any visible dust continually escapes into the surrounding atmosphere, this requirement is not fulfilled.)

2. In the absence of other equally effective means, a dust collector of a type that is efficient in removing fine dust particles from the exhaust air should be provided to prevent recontamination of the working atmosphere.

3. Satisfactory and economical control of dust from surfacing machines can be accomplished with air flows ranging from 200 to 600 cubic feet per minute. No surfacer exhaust system providing adequate dust control with an air flow of less than 200 c.f.m. is known to this office. On the other hand, many existing systems fail to give adequate dust control with air flows of 600 c.f.m. or even greater. While air flows of 200 to 350 c.f.m. may be made adequate to control the fine dust, they will not remove the chips from the surface of the stone. For installations complying with the following five specifications, an air flow of 600 c.f.m. is recommended.

a. Use of the "encircling hood" and "baffle disc" with the four-point chisel. These devices (described in supplement) have proved entirely practical and often enable satisfactory dust control with otherwise inadequate exhaust.

b. Elimination of all rubber hose less than 5 inches in inside diameter.

c. Maintenance of flexible portion of exhaust system to eliminate excessive leakage. This requires replacement of hose that is badly worn and of worn ball joints. Leakage is excessive if greater than 15 per cent.

d. Elimination in stationary part of exhaust system of connections that are wasteful of power (illustrated).

e. Maintenance of fan efficiency. The housing of the fan must not have been worn through at any point. If the blades of the fan wheel are worn, they must be replaced.

Benzol Poisoning.—Eight possible cases of benzol poisoning, seven of them fatal, came to the division's attention during the year.

Five of the fatalities involved workers in artificial leather manufacturing establishments. In several instances there was no evidence of ill health until some time after exposure to benzol had practically ceased. The benzol vapor concentrations existing in the various departments of the plants where these cases occurred have been listed in a previous report.

The other three cases, two of them fatal, were in workers using rubber cement. One girl died after working with a benzol cement for about six months in a plant manufacturing crepe soles for shoes. In another plant a girl carrying out a similar operation became ill with symptoms of benzol poisoning, but is slowly recovering. In neither of these cases was there opportunity to measure the benzol exposure, but tests in the second plant, made after benzol had been replaced by naphtha, indicated that the worker was exposed to vapor concentrations ranging from 300 to 1300 p.p.m. The third of these cases involved a cobbler who used benzol cement in relatively small quantities during the course of his work. While his exposure could not have been great, the symptoms of his fatal illness corresponded with those of benzol poisoning.

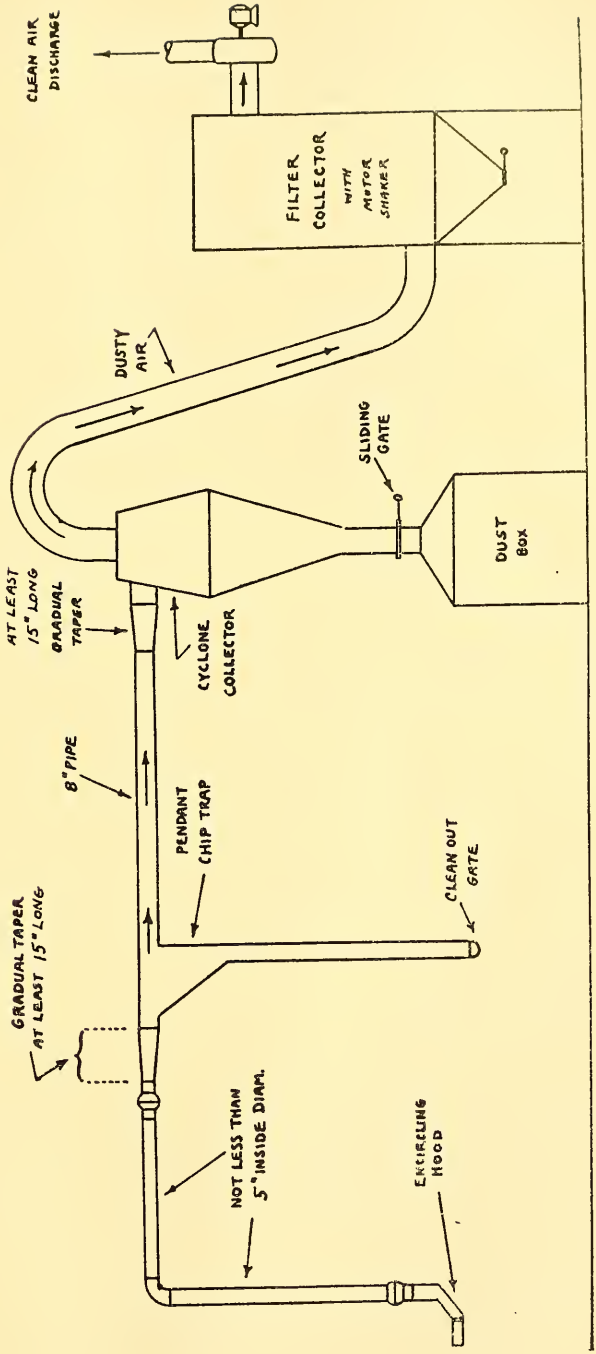


Fig. 2. Granite surfacer exhaust ventilation system.

A group of nearly 80 benzol workers, including most of the cases referred to above, have been examined by Doctor Francis T. Hunter of Boston. These have been correlated with the benzol exposure, as determined by members of this division, and the results will be published as soon as the work is completed. In the following table, data concerning ten serious cases of possible benzol poisoning are summarized. These include two cases referred to in an earlier report.

TABLE V.—TEN SERIOUS CASES OF BENZOL POISONING.

Occupation	Industry	Benzol Exposure		Outcome
		Years	Concentration P.P.M.	
Coater	Artificial leather	Several	150	Fatal
Compounding room	Artificial leather	12	180	Fatal
Compounding room	Artificial leather	1	180	Fatal
Coating, compounding and finishing	Artificial leather	11	Varied	Fatal
Mechanic	Artificial leather	—	100*	Fatal
Pyro room—compounding	Artificial leather	12	100	Fatal
Compounding room	Artificial leather	3	200	Fatal
Crepe sole cementing	Rubber goods manufacture	½	500*	Fatal
Crepe sole cementing	Shoe manufacture	½	500*	Recovering
Rubber cementing	Shoe repairing	Several	25*	Fatal

* Estimated.

The measurement of benzol vapor concentration can be supplemented by determination of the ratio of inorganic to total sulfate in the urine of exposed workers. This method, commonly called the urine sulfate test, was developed by the United States Bureau of Mines. The division has experimented with this test and, while the study is not yet finished, the results so far obtained are quite promising. It has been found that, if the urine samples are taken after several hours of work in an atmosphere containing benzol vapor, the lowering of the urine sulfate ratio will be approximately proportional to the benzol vapor concentration. It is hoped that a definite correlation between benzol vapor exposure and the urine sulfate ratio can be obtained.

The connection between benzol exposure and poisoning cases may be stated from our experience as follows:

(1) No plant which, to our knowledge, has had a significant number of workers exposed continually and for long periods to appreciably over 100 p.p.m. of benzol vapors has escaped serious poisoning cases.

(2) No plant with numerous workers exposed to benzol vapor in concentrations ranging from 20 to 75 p.p.m., but with no high exposures, has had any serious cases of benzol poisoning.

(3) Occasional cases of suspected benzol poisoning have occurred in isolated workers with very low exposures.

Co-operating Chemical Manufacturers:—The correction of unhealthy conditions in a factory where occupational disease has brought them to light is obviously essential, but is in the nature of a padlock applied to the barn after at least one horse has been stolen. A means of forestalling even the initial case inaugurated by the division in 1936 has been to secure from manufacturers of industrial chemicals whose use may involve serious hazard to health the names of Massachusetts purchasers of such products. This is a matter of voluntary co-operation in the public interest and involves confidence on the part of the producer that the information given will not be used in a manner unfairly detrimental to his interests.

The names of five leading industrial chemical manufacturers who had thus co-operated in the division's preventive work were recorded in last year's report. It is a pleasure to add to this list the names of the Celanese Corporation of America and the Trubenizing Process Corporation, both of New York City, whose assistance is appreciatively acknowledged.

INDUSTRIAL CHEMICAL SURVEY

The industrial chemical survey initiated in 1936 and continued through 1937 was prosecuted in 1938 on a somewhat lesser scale. The work of this survey, undertaken for the purpose of securing information as to the extent and manner of use of chemical substances hazardous to health in the industries of the Commonwealth, has been carried on, under supervision of the division's chemist, by a small group of technically trained men furnished by the Works Progress Administration.* A change in W.P.A. policy during the year materially restricted the field work of these men and a two-months' shut-down resulted in an almost complete change of personnel. Nevertheless, a substantial amount of useful work was accomplished, with laboratory activities greater in proportion to the field studies than heretofore. Brief summaries of investigations into hazardous aspects of electric lamp manufacture, leather belting manufacture, automobile tire retreading, fused collar making, industrial use of chlorinated diphenyls, lead smelting and the decomposition of halogenated hydrocarbon vapors by smoking follow.

Electric Lamp Manufacture.—Studies were made in two plants manufacturing electric light bulbs. Tests for carbon monoxide and lead in the vicinity of lamp assembly machines were made. The carbon monoxide determinations made in one plant showed no detectable quantity of this gas. With proper operation and maintenance of equipment, these processes should not involve any health hazard from carbon monoxide.

As some of the glass used in electric light bulbs has a high lead content, the possibility of lead fumes being evolved during its heating and working was considered. Analysis of the air near these machines did show small quantities of lead compounds present, but the highest concentration found was 0.5 mg. of lead per 10 cubic meters of air, or one third the lowest value usually considered harmful.

Other potential health hazards noted were lead pigments in the green and yellow paints used, toluol in lacquer solvents, nitrogen dioxide from nitric acid used in filament manufacture, and mercury. In no case was there enough evidence of actual hazard to warrant further study.

Leather Belting Manufacture.—In the survey of woolen goods manufacture recorded in the 1937 report, a severe exposure to benzol vapor was found in the manufacture and repair of leather belting in the maintenance shop of a woolen mill. This was caused by the use of a pyroxylin cement containing benzol. To determine whether benzol cements were widely used in belt manufacturing processes, four establishments engaged in making belts were visited. It was found that in no case were products containing benzol used. Acetone and ethyl acetate were the chief solvents in the pyroxylin cements employed. One sample contained toluol, and another a small amount of methanol.

In one plant, a belt finishing process involved the use of ethylene dichloride. When first used, some temporary illness had been attributed to the vapors given off, but ventilation was installed and tests made at the time of the survey showed concentrations averaging well below 100 p.p.m., the maximum allowable concentration for this solvent.

Automobile Tire Retreading.—An inquiry as to possible health hazards in tire retreading led to a brief survey of Boston plants engaged in this work. Three plants were visited. The chief exposure is to organic and inorganic dust resulting from the grinding or buffing of the tires being repaired. Of three samples of dust, two showed small quantities of lead. Neither exceeded one per cent.

There was also an unimportant exposure to solvent naphtha from the rubber cement used.

Fused Collar Making.—Several cases of illness among workers engaged in the manufacture of fused collars for men's shirts were recently reported by the New York Division of Industrial Hygiene. These were found to be due to the use of methyl cellosolve, the mono-methyl ether of ethylene glycol.

*W.P.A. Project Nos. 65-14-6060, 665-14-3-409.

An inquiry was made into the extent to which similar processes are carried out in this Commonwealth. It was found that four Massachusetts shirt manufacturers make collars of this type. Although these establishments employ two thousand workers, over 1800 of whom are women, only six workers were found to be engaged in the fused collar processes. Of these, three were employed in dry processes, in which no solvent is used. The others were using a wet process involving the use of denatured alcohol, a relatively non-toxic solvent.

As none of the workers were exposed in any way to methyl cellosolve, the solvent which was the offending agent in the New York cases, the industry here is believed to be free from any important health hazard.

It should be pointed out, however, that there is some slight exposure to fumes given off by the various plastics and synthetic resins when the collars are heated and pressed. While there is no evidence that such fumes are especially dangerous, their toxic properties in most cases have not been adequately studied and there is always a possibility of unpredictable physiological reaction.

Chlorinated Diphenyls.—Substances made by the addition of chlorine to diphenyl and related compounds are to a certain degree similar in physical properties to the chlorinated naphthalenes, which have been discussed in previous reports. As there is some evidence that the physiological effects of some of these products are also similar to those produced by the chlorinated naphthalenes, a survey of Massachusetts plants employing these materials was made.

It appeared that only five plants made use of these compounds. In three of these, the use was intermittent and relatively infrequent. In the other two, the use was more regular and tests were made to determine the concentration of fumes during such use. In one plant where it was used cold, concentrations of chlorinated diphenyl of less than 0.2 mg. per cubic meter of air were found. In the other plant the material was handled hot and, during the period of maximum exposure, concentrations as high as 1 mg. per cubic meter of air were found, with an average concentration of about 0.5 mg. The average exposure throughout the working day was much less than this, however.

The threshold concentration for the most toxic of these products has been set at 0.5 mg. per cubic meter of air, while with the majority of these substances, much higher concentrations are apparently safe. It is believed that there is no serious danger of systemic injury arising from the industrial uses of these products, insofar as they have been studied in this state.

An important difference between the chlorinated diphenyls and the chlorinated naphthalenes is that the former usually have a lower melting point and the use of high temperatures is less frequently necessary.

Lead Smelting.—Six plants engaged in the recovery of lead from waste metals and in the manufacture of lead alloys were visited and tests were made in four. The processes carried out in these plants may be roughly classed as follows:

(1) Smelting or reduction of lead oxide, usually from old storage batteries, with production of impure metal.

(2) Lead or alloy compounding from waste containing metallic lead. The metal in this case is usually purified somewhat before casting.

(3) Alloy casting, especially solder, which is usually made from relatively pure metals.

(4) Lead sheet, pipe or wire manufacture, starting with pure lead.

A total of 61 air samples were taken with the impinger apparatus and analyzed for lead. The results are summarized in the following table.

Table VI. Atmospheric Lead in Lead Smelting Plants

Process	Number of Samples Taken	Lead Found (Mg. per 10 Cubic Meters Air)		
		Maximum	Minimum	Average
Smelting	6	8.6	1.7	4.7
Lead recovery—purifying	17	23.4	0.6	4.2
Lead recovery—casting	12	3.8	0.3	2.2
Pipe, sheet, etc., manufacture	16	3.2	0.7	1.4
Solder casting	5	4.5	1.1	2.1
Room conditions	5	3.9	0.05	1.0

It is seen that the highest lead concentrations were found in the vicinity of kettles in which lead was being purified, although the average concentrations were higher near the smelting furnaces. The actual casting of lead or lead alloys, such as solder, involves a lower exposure, while the fabrication of lead pipe, sheets, etc., is associated with still lower concentrations of atmospheric lead.

On the whole, conditions in these plants were better than anticipated. Further work in this study is planned.

It has been shown recently that the impinger does not collect lead fume efficiently, the results with freshly formed fume sometimes being less than half as high as those obtained with the electric precipitator. It is believed, however, that under the conditions when the tests were made, 60 to 90 per cent of the lead present in the air was removed. Moreover, the figure for maximum allowable concentration used (1.5 mg. per 10 cubic meters of air) was based on work done with the impinger. The results given are therefore probably a true picture of conditions created by the processes in question. The use of a portable electric precipitator is preferable, however, whenever practicable, when metal fumes are being collected.

Decomposition of Halogenated Hydrocarbon Vapors by Smoking.—The production of highly toxic gases, especially the well-known war gas, phosgene, from the action of heat on chlorinated hydrocarbon vapors obviously increases the potential hazards resulting from the use of such materials. It has been stated frequently that such decomposition occurs when air containing halogenated compounds passes through a burning cigarette or cigar, and that smoking in the vicinity of processes involving such solvents should therefore be prohibited. Conversely, some manufacturers have hesitated to use chlorinated solvents, especially in products used in small establishments where smoking is commonly not prohibited.

As no experimental evidence has been presented to back up the statements referred to above, a brief series of tests was carried out in order to determine the actual extent of the hazard produced. It was found that, while there is a very slight amount of decomposition, the quantity of highly toxic gases formed is much less than had generally been believed.

The experiments involved burning cigarettes and cigars in air containing relatively high concentrations of the vapors of trichlorethylene, carbon tetrachloride, dichlorobenzene, dichlorodifluoromethane, ethylene dibromide and ethyl bromide. It was concluded that the extent of decomposition when smoking in the presence of such vapors is of a low order and does not constitute a health hazard. While the practice of smoking when working with solvents of any type is not recommended, certainly the use of chlorinated solvents in rooms where smoking may occur need not be especially avoided.

Summary

The work of the survey has again had the wholehearted co-operation of the industries visited and the assistance accorded to its furtherance is acknowledged with appreciation.

Accurate census figures are not available for most of the industries studied this year and no atempt is made in Table VII to indicate the proportion of establishments and employees included in the survey.

TABLE VIII. NUMBER OF ESTABLISHMENTS AND EMPLOYEES INCLUDED IN SURVEY

Industry	Establishments	Employees
Electric lamp manufacture	2	526
Leather belting manufacture	4	1094
Tire retreading	3	16
Fused collar making	3	2000
Use of chlorinated diphenyls	5	485
Lead smelting	6	117

Visits to factories in connection with the survey totalled 41, field determinations of fume and dust concentrations 209 and laboratory determinations 454.

Other Activities

Members of the staff have again been called upon for a variety of activities beyond the field and laboratory work already noted. Services of an educational nature have been of some importance, invitations to participate in the deliberations of other organizations have been accepted as warranted by the interests of the division and a number of public addresses have been given. Memberships in several committees related to the work have taken their share of time and effort.

Educational Co-operation.—The program of co-operation with the Harvard School of Public Health has this year included lectures by the director and chemist and the conduct of two laboratory meetings by the latter as part of the school's course in industrial hygiene and sanitary air analysis. Another interesting feature of this course participated in by the director was a mock legislative hearing relative to the establishment of a governmental industrial hygiene agency. A number of students from this school also visited the division's office and laboratory. A class of eighteen students in hygiene and public health from the Massachusetts Institute of Technology visited the division and received instruction in the administrative, chemical and engineering phases of the work. Two students from the same institution were also given practical laboratory and field experience. A lecture on occupational disease prevention was given by the director to a class in biology and health at Simmons College. Substantial amounts of printed matter have again been issued to educational and governmental agencies.

Participation in Related Activities.—Gatherings of major importance participated in by members of the staff have been meetings of the Boston Health League, the Massachusetts Central Health Council, the Massachusetts Public Health Association, the Engineering Section of the Massachusetts Safety Council, the Massachusetts Conference of Social Work, the New England Pathological Society and the Suffolk District Medical Society, all held in Boston, the Advisory Committee on Toxic Fumes and Gases of the American Standards Association, in New York City, the Air Hygiene Foundation of America, at Pittsburgh, Pa., and the three-day National Conference of Governmental Industrial Hygienists at Washington, D. C. Conferences on matters of occupational hygiene were attended at the Connecticut Bureau of Occupational Diseases and Travelers Insurance Company, Hartford, Conn., and the New York State Division of Industrial Hygiene and Metropolitan Life Insurance Company, New York City.

Speakers on subjects related to the work of the division were furnished to meetings of the New England Foundrymen's Association, the Granite Manufacturers Association of Quincy, the Trudeau Society, the Massachusetts District Health Officers, the Health Workers of Western Massachusetts and the Ware Rotary Club. Both the chemist and engineer read papers at the annual Massachusetts Safety Conference. A 15-minute broadcast was given over Station WHDH, Boston.

The division continues to be represented on the Committee on Standard Practices in the Problem of Compensation of Occupational Diseases and the Subcommittee on Chemical Methods of Air Analysis of the Committee on Standard Methods for the Examination of the Air of the American Public Health Association.

New England Industrial Hygiene Conferences.—An interesting local development in the field of industrial health have been the New England Industrial Hygiene Conferences initiated last winter and now apparently firmly established. Without dues, bylaws or other usual evidences of formal organization, these meetings are designed to bring together at relatively frequent intervals and minimal expense those individuals in New England and New York who are actively enough interested in occupational disease prevention to warrant attendance at such gatherings. A liberally inclusive mailing list has been built up by Professor Philip Drinker of the Harvard School of Public Health, who, as secretary by common consent, is the conference's nearest approach to an officer. The several agencies in the area concerned with industrial hygiene are taking turns

in sponsoring the meetings, for each of which an adequate yet elastic program of papers on topics of current interest is arranged. Attendance at the three meetings thus far held, recruited mainly from the personnel of governmental, research and insurance agencies, has been excellent and enthusiastic. All have been actively participated in by the director, chemist and engineer of the division.

The initial conference, sponsored jointly by the Harvard School of Public Health and Liberty Mutual Insurance Company, was held in Boston on January 22. A morning program of papers on technical and administrative phases of occupational disease prevention at the school was followed by luncheon at the company's offices and inspection of its industrial hygiene laboratory.

The second conference, held at Hartford, Connecticut, on May 20, was jointly sponsored by the Connecticut Bureau of Occupational Diseases and the Aetna Casualty and Surety Company. The technical program and luncheon at the company's offices were followed by an inspection of the plant of the United Aircraft Corporation.

The third and last conference of the year was held at Barre, Vermont, under the auspices of the Division of Tuberculosis and Industrial Hygiene of the Board of Health of that state. The afternoon of November 3 and morning of the day following were devoted to discussion of recent developments in the control of silicosis and visits to two of the granite quarries and three of the granite cutting establishments for which the locality is noted.

Boston Health League Committee on Occupational Hygiene.—The Committee on Occupational Hygiene of the Boston Health League, established in the closing days of 1937, selected as its first undertakings (1) an investigation to determine the advisability of re-establishing an industrial clinic in a major Boston hospital, and (2) to promote the reporting of occupational disease cases by physicians and hospitals. The investigation in question was undertaken by Dr. Charles F. Wilinsky for the committee and an adverse report was submitted. Dr. Arthur B. Emmons, 2d, also a member of the committee, generously undertook to attend meetings of local medical societies to which invitation could be secured and explain to the membership the importance of occupational disease case reporting. Eleven meetings were thus addressed. The results of this program, quite meager to date, are no index of the unselfish effort given to it by Dr. Emmons.

Dust and Fume Code Committee.—The greater part of the maximum allowable industrial fume concentrations proposed by the department's Dust and Fume Code Committee have now had nearly a year's practical application in the preventive activities of the division and its co-operative work with the Division of Industrial Safety. While no such figures can be absolute and some will no doubt be changed in the light of further experience, results thus far indicate that the standards proposed by the committee, besides being more comprehensive, are as technically sound and industrially practical as any such figures heretofore put forward. Their importance to occupational health conservation justifies their republication.

Ammonia	100	Hydrogen cyanide	20
Amyl acetate	400	Hydrogen fluoride	3
Aniline	5	Hydrogen sulfide	20
Arsine	1	Lead	0.15*
Benzol	75	Mercury	0.1*
Butyl acetate	400	Methanol	200
Cadmium	0.1*	Monochlorbenzene	75
Carbon bisulfide	15	Nitrobenzene	5
Carbon monoxide	100	Nitrogen oxides	10
Carbon tetrachloride	100	Ozone	1
Chlorine	1	Phosgene	1
Chlorodiphenyls	1*	Phosphine	2
Chloronaphthalenes	1 to 5*	Sulfur dioxide	10
Chromic acid	0.1*	Tetrachlorethane	10
Dichlorbenzene	75	Tetrachlorethylene	200
Dichlorethyl ether	15	Toluol	200
Ether	400	Trichlorethylene	200
Ethylene dichloride	100	Turpentine	200
Formaldehyde	20	Xylol, Coal tar naphtha	200
Gasoline	1000	Zinc oxide fume	15*
Hydrochloric acid	10		

*Milligrams per cubic meter; all others parts per million.

Publications.—Publications during the year by the division or members of its staff, chiefly bulletins and lists issued in connection with the program of educational co-operation, have been:

1. "Publications, 1937." List, 1 p.
2. "Report of the Division of Occupational Hygiene for the Year Ending Nov. 30, 1936." 30 pp.
3. "Chemical Hazards in the Shoe Industry." Trade Survey, N. E. Shoe and Leather Association, Dec. 29, 1937.
4. "Major Items of Technical Equipment." List, 1 p.
5. "Important Reference Volumes." List, 1 p.
6. "Periodicals Regularly Received." List, 1 p.
7. "Dust, Fume and Mist Respirators Approved by the U. S. Bureau of Mines." List, 1 p.
8. "A Helpful Service to Industry." Bulletin, 1 p.
9. "Occupational Health Hazards in Massachusetts Industries. I. Lead Storage Battery Manufacture." Report, 6 pp.
10. "Occupational Health Hazards in Massachusetts Industries. II. Paint and Varnish Manufacture." Report, 10 pp.
11. "Occupational Health Hazards in Massachusetts Industries. III. Shoe Manufacture." Report, 6 pp.
12. "Occupational Health Hazards in Massachusetts Industries. IV. Wood Heel Covering." Report, 6 pp.
13. "Occupational Health Hazards in Massachusetts Industries. V. Woolen and Worsted Goods Manufacture." Report, 3 pp.
14. "The Seventeenth Annual Massachusetts Safety Conference." Bulletin, 1 p.
15. "A Survey of Your Industry." Bulletin, 1 p.
16. "A Survey of Massachusetts Shoe Factories." Shoe and Leather Reporter, Feb. 26, 1938.
17. "Excerpt from Summary of Report of the Committee on the Prevention of Silicosis Through Medical Control, National Silicosis Conference." Reprint, 1 p.
18. "A Selective List of Correspondents and Reference Sources." List, 1 p.
19. "Dust, Fume and Mist Respirators Approved by the U. S. Bureau of Mines." List, 1 p. (Supersedes No. 7)
20. "The Application of Dust Control Principles to Foundry Operations—Discussion." Second New England Regional Foundry Conference, April 8, 1938.
21. "The Determination of Benzol Vapor in the Atmosphere." Preventive Engineering Series, Bulletin No. 2, Part 1, Air Hygiene Foundation of America, January, 1938.
22. "The Determination of Chlorinated Hydrocarbon Vapors in the Atmosphere." Preventive Engineering Series, Bulletin No. 2, Part 3, Air Hygiene Foundation of America, March, 1938.
23. "Publications, 1937." List, 1 p. (Supersedes No. 1)
24. "Granite Dust Control. I. Banker Exhaust Ventilation." Bulletin, 2 pp.
25. "Granite Dust Control. I. Banker Exhaust Ventilation. Supplement A. The Ruemelin Banker Exhaust Unit." Bulletin, 1 p.
26. "Granite Dust Control. I. Banker Exhaust Ventilation. Supplement B. The C. F. Berg Banker Exhaust Unit." Bulletin, 1 p.
27. "Maximum Allowable Concentrations; Fumes." Tabular bulletin, 1 p.
28. "Dust, Fume and Mist Respirators Approved by the U. S. Bureau of Mines." List, 1 p. (Supersedes No. 19)
29. "Shoe Factory Health Hazards." Bulletin, 1 p.
30. "Woolen and Worsted Mill Health Hazards." Bulletin, 1 p.
31. "Skin Burns from Lime Dust." Bulletin, 1 p.
32. "Trichlorethylene Degreasers." Bulletin, 1 p.
33. "Granite Dust Control. II. Surfacer Exhaust Ventilation. Supplement A. The Encircling Hood." Bulletin, 1 p.

34. "Provisions of the General Laws Relative to Duties of the Department of Labor and Industries in Industrial Health and Safety." Reprint from Chapters 23 and 149, General Laws. 1 p.

35. "Mechanical Filter Dust, Fume and Mist Respirators Approved by the U. S. Bureau of Mines." List, 1 p. (Supersedes No. 28)

36. "Granite Dust Control. I. Banker Exhaust Ventilation. Supplement A. The Ruemelin Banker Exhaust Unit." Bulletin, 1 p. (Supersedes No. 25)

37. "Granite Dust Control. I. Banker Exhaust Ventilation. Supplement B. The C. F. Berg Banker Exhaust Unit." Bulletin, 1 p. (Supersedes No. 26)

38. "Mechanical Filter Dust, Fume and Mist Respirators Approved by the U. S. Bureau of Mines." Illustrative bulletin, 1 p.

39. "Occupational Health Hazards in Massachusetts Industries. VI. Fur Cleaning." Report, 5 pp.

TABLE VIII.—HAZARDOUS CONCENTRATIONS FOUND.

OPERATION	ATMOSPHERIC CONTAMINANT	Number Samples	HAZARDOUS CONCENTRATIONS Number	HAZARDOUS CONCENTRATIONS Per Cent
Automobile repairing	Carbon monoxide	101	5	5
Cable impregnating	Chloronaphthalene	2	0	0
Cadmium melting	Cadmium	5	4	80
Cadmium spraying	Cadmium	2	2	100
Chemicals mixing	Chlorodiphenyl	5	2	40
Dope mixing	Benzol	34	18	53
	Toluol	8	0	0
	Total vapors	3	0	0
Electroplating	Hydrogen cyanide	5	0	0
	Chromic acid	2	0	0
Fabric coating	Benzol	8	4	50
	Toluol	3	0	0
	Total vapors	3	0	0
Felt hat finishing	Mercury	6	0	0
Felt hat forming	Mercury	5	5	100
Felt hat hardening	Mercury	1	1	100
Felt hat pouncing	Mercury	2	1	50
Felt hat shrinking	Mercury	3	0	0
Felt hat starting	Mercury	11	6	55
Felt hat stretching	Mercury	2	0	0
Foundry work, dusty, N. O. C.	Lead	1	0	0
	Silica dust	27	17	63
Fur mixing, blowing, storage	Mercury	8	7	87
Garment cleaning	Carbon tetrachloride	11	0	0
	Trichlorethylene	5	0	0
Garment pressing	Trichlorethylene	1	0	0
Garment spotting	Trichlorethylene	2	0	0
Instrument filling	Chlorodiphenyl	2	0	0
Lead casting	Lead	38	25	66
Lead smelting	Lead	4	4	100
Leather finishing	Ethylene dichloride	7	2	30
Linotyping	Lead	2	0	0
Metal degreasing	Ethylene dichloride	6	1	17
	Trichlorethylene	11	7	64
Metal grinding	Silica dust	27	14	52
Metal machining	Magnesium	2	–	–
Metal pouring	Lead	4	4	100
Multigraphing	Carbon tetrachloride	5	0	0
Office work, N. O. C.	Carbon dioxide	4	0	0
Paint, lacquer spraying	Acetone	1	0	0
	Amyl acetate	6	0	0
	Lead	4	3	75
	Total vapors	4	2	50
Paint removing	Toluol	2	0	0
Paper coating	Benzol	4	1	25
Paper finishing	Bismuth	2	0	0
Rayon xanthating	Carbon bisulfide	2	2	100
Rock crushing	Silica dust	1	1	100
Rubber compounding	Lead	2	2	100
Rubber curing	Sulfur chloride	4	0	0
	Naphtha	4	1	25
Rubber dusting	Mica dust	4	0	0
	Starch	5	–	–
Rubber mixing	Lead	2	0	0
Soap making, N. O. C.	Silica dust	4	1	25
Solder grinding	Lead	18	18	100
Soldering	Lead	8	7	88
Steel hardening	Lead	4	0	0
Stereotyping	Lead	6	5	83
Wood heel covering	Methanol	4	4	100
Wool fulling	Dichlorbenzene	3	0	0
Total		472	176	37

40. "Granite Dust Control. I. Banker Exhaust Ventilation." Bulletin, 2 pp. (Supersedes No. 24)

41. "Granite Dust Control. II. Surfacer Exhaust Ventilation." Bulletin, 2 pp.

42. "Granite Dust Control. II. Surfacer Exhaust Ventilation. Supplement A. The Encircling Hood and Baffle Disc." Bulletin, 1 p. (Supersedes No. 33)

Summary of Field and Laboratory Work

Hazardous Conditions Found.—Of interest in summarizing the field and laboratory work of the year is a consideration of the hazardous concentrations of industrial fumes and dusts brought to light thereby. Table VIII lists the operations studied in the routine and survey work of the year and indicates the number and per cent of hazardous concentrations of toxic materials found therein. The latter figures should be read with the understanding that they are based upon the maximum allowable concentrations enumerated on page 133 and that the factor of continuous or periodic exposure has been neglected for the purposes of this tabulation.

A condensed summary of the year's field and laboratory work is offered in Table IX

Table IX.—Condensed Summary of Field and Laboratory Work.

		Routine Work	Chemical Survey	Laboratory Studies	Total
Visits to plants		480	41	–	521
Field determinations		267	209	–	476
Acetone	1				
Amyl acetate	6				
Benzol	46				
Bismuth	2				
Cadmium	7				
Carbon bisulfide	2				
Carbon dioxide	4				
Carbon monoxide	101				
Carbon tetrachloride	16				
Chlorodiphenyl	7				
Chloronaphthalene	2				
Chromic acid	2				
Dichlorbenzene	3				
Ethylene dichloride	13				
Hydrogen cyanide	5				
Lead	93				
Magnesium	2				
Mercury	38				
Methanol	4				
Naphtha	4				
Siliceous dust	67				
Starch	5				
Sulfur chloride	4				
Toluol	13				
Total vapors	10				
Trichlorethylene	19				
Laboratory determinations		813	454	102	1,369
Total determinations		1,080	663	102	1,845

REPORT OF THE DIVISION ON THE NECESSARIES OF LIFE

Richard Olney, *Director*

Authorization

Sections of chapter 410 of the acts of 1930, as amended by chapter 362 of the acts of 1933, are published herewith:

Section 9E:—The division shall study and investigate the circumstances affecting the prices of fuel, gasoline and refined petroleum products and other commodities which are necessaries of life. It may inquire into all matters relating to the production, transportation, distribution and sale of the said commodities, and into all facts and circumstances relating to the cost of production, wholesale and retail prices and the method pursued in the conduct of the business of any persons, firms or corporations engaged in the production, transportation or sale of the said commodities, or of any business which relates to or affects the same. It shall also study and investigate the circumstances affecting the charges for rent of property used for living quarters and in such investigation may inquire into all matters relating to charges for rent.

Section 9F:—The division shall have authority to give hearings, to administer oaths, to require the attendance and testimony of witnesses and the production of books and documents and other papers, and to employ counsel. Witness summonses may be issued by the director, or by any assistant by him designated and shall be served in the same manner as summonses for witnesses in criminal cases issued on behalf of the commonwealth, and all provisions of law relative to summons issued in such cases shall apply to summonses issued hereunder, so far as they are applicable. Any justice of the supreme judicial court or of the superior court may, upon application of the director, compel the attendance of witnesses and the giving of testimony before the division in the same manner and to the same extent as before said courts.

Section 9G:—The division shall investigate all complaints made to it and may publish its findings. It shall keep in touch with the work of federal and municipal and other agencies dealing with the necessaries of life, and give them such assistance as it deems advisable; and may invoke the aid of said agencies and of civic and other organizations.

Section 9H:—Whenever the governor shall determine, that emergency exists in respect to food or fuel, or both, he may with the approval of the council, by a writing signed by him, designate the director of the division on the necessaries of life to act as an emergency food or fuel administrator, or both, and thereupon the director shall have, with respect to food or fuel or both, as the case may be, all the powers and authority granted by the Commonwealth Defense Act of nineteen hundred and seventeen, being chapter three hundred and forty-two of the General Acts of nineteen hundred and seventeen, to persons designated or appointed by the governor under section twelve of said chapter three hundred and forty-two; and the governor may revoke such written authority at any time. During such an emergency, the governor with the approval of the council, may make and promulgate rules and regulations, effective forthwith, for the carrying out of the purposes of this section and for the performance by the commonwealth, and the cities and towns thereof of any function affecting food and fuel authorized under Article XLVII of the amendments to the constitution. Violation of any such rule or regulation shall be punished by a fine of not more than five hundred dollars or by imprisonment for not more than six months or by both. The provisions of said chapter three hundred and forty-two are hereby made operative to such extent as the provisions of this section may from time to time require.

Summary of Activities

The division is generally regarded as a clearing house for all sorts of complaints and troubles which arise throughout the year regarding prices. The duties and activities are so varied that almost every type of case in which our citizens feel they are aggrieved comes within our jurisdiction for investigation. Cases handled by the division include rent and housing disputes; cleansing and dyeing cases; automobile finance cases; misunderstandings between buyers and sellers; clothing, food, fuel and other complaints pertaining to the "necessaries of life." In addition to hearing, investigating and adjusting thousands of individual cases, special investigations were made.

A number of hearings were held with groups of reputable gasoline dealers relative to legislation which would provide that a standard be set for all gasoline sold in the commonwealth; that an inspection corps of sufficient size to carry out the provisions of the bill be authorized; that a license fee of $2 per pump be imposed by the State to finance such service, and that a minimum retail price above the wholesale price be set. Of the bills presented to the legislature, the following bill was enacted June 14, 1938:

CHAPTER 411.—An Act Prohibiting and Penalizing the Use of Misleading Signs Relating to the Price of Gasoline and Other Motor Fuel.

Whereas, The deferred operation of this act would tend to defeat its purpose, therefore, it is hereby declared to be an emergency law, necessary for the immediate preservation of the public convenience.

Be It Enacted, etc., as Follows:

Chapter ninety-four of the General Laws is hereby amended by inserting after section two hundred and ninety-five A, inserted by chapter two hundred and twenty-eight of the acts of nineteen hundred and thirty-three, the following two new sections:—

Section 295B. The term "retail dealer", when used in this section and section two hundred and ninety-five C, shall mean any person operating a service station, filling station, store, garage, establishment or other place of business for the sale of or dispensing of motor fuel for delivery into the service tank or tanks of any motor vehicle which is propelled by an internal combustion motor, other than such a motor vehicle belonging to the person owning or operating said place of business.

The term "motor fuel", when used in this section and section two hundred and ninety-five C, shall mean a light distillate of petroleum or allied substance heretofore sold under the name of gasoline, with suitable volatility and other characteristics to be used as a fuel for operating internal combustion engines, whether or not it is mixed with other materials.

Section 295C. Every retail dealer of motor fuel shall conspicuously mark his pumps or other dispensing equipment with the price of the motor fuel dispensed from that pump or dispensing equipment. No person shall mark his pumps or dispensing equipment with price signs of a size larger than eight inches by ten inches, and no other price signs of motor fuel so dispensed or signs relating to the price of such fuel shall be used or displayed on or about the premises where motor fuel is sold at retail other than the signs provided herein to be posted upon the pumps or dispensing equipment. All figures, including fractions, upon said signs, other than figures and fractions used in any price computing mechanism constituting a part of any such pump or dispensing equipment herein referred to, shall be of the same size.

Whoever, himself or by his agents or servants, violates any provision of this section shall be punished by a fine of not less than fifty nor more than five hundred dollars.

Shortly after this bill was enacted, complaints were received by this division relative to infractions of this law. Under section 9E of chapter 410 of the acts of 1930, as amended by chapter 362 of the acts of 1933, it states as follows:

"The division shall study and investigate the circumstances affecting the prices of fuel, gasoline and refined petroleum products and other commodities

which are necessaries of life. It may inquire into all matters relating to the production, transportation, distribution and sale of the said commodities, and into all facts and circumstances relating to the cost of production, wholesale and retail prices and the method pursued in the conduct of the business of any persons, firms or corporations engaged in the production, transportation or sale of the said commodities, or of any business which relates to or affects the same."

Under this law many investigations were made and, in most instances, the retailer agreed to line up in accordance with the law. Court action was taken in a few cases, and one defendant was found guilty and fined. An immediate appeal was made to the Superior court. No decision has been handed down as yet.

The division received various complaints that exorbitant prices prevailed in the sale of range oil. It recognized the justice of the complaints and arranged for a joint meeting of this division and the retail association which has a membership of more than 700 and wields considerable influence throughout Greater Boston. Meetings were held with the association which represented the dealers, and it was decided to lower the retail price of range oil. The so-called Boston district consists of the following cities and towns frequently called or known as the Metropolitan District: Arlington, Belmont, Boston, Brookline, Cambridge, Chelsea, Everett, Malden, Medford, Melrose, Milton, Newton, Quincy, Revere, Somerville, Waltham, Watertown and Winthrop.

Usual activities were continued by the division with regard to investigation of complaints relative to prices, stocks on hand, transportation, distribution, etc., of fuels. The survey of fuels used in home heating has been conducted with reports of coal and oil being obtained from distributors over six months' periods. This information places the division in a position to cope with any emergency in case of strikes or other interference with the regular distribution of heating fuels.

The cost of living index has been computed and distributed monthly. This index is issued to business, welfare, municipal organizations, libraries, schools, colleges, etc., in practically every State in the Union, as well as to governmental authorities which include national, state and city officials.

On Wednesday afternoon, September 21, Massachusetts was visited by a severe hurricane, accompanied by copious rain, following which rivers and even small streams were turned into raging and threatening waters which produced disastrous floods over many portions of the state. Tidal waves also wrecked many homes, especially on the Cape, and many lives were lost.

The Governor, anticipating serious consequences, wisely kept the Council in session and, shortly before midnight, invoked the provisions of the acts of 1933, chapter 362, declaring that an emergency existed in respect to both food and fuel. He requested the Council to approve his written designation that the Director of the Division on the Necessaries of Life act as Emergency Food and Fuel Administrator for and during the pendency of the aforesaid emergency.

Upon consideration of this communication, it was voted that the Council approve the act of His Excellency, Governor Hurley. Since the Governor, anticipating an emergency, had instructed the division to stand by, the office force was available to take over at midnight the responsibility of enforcing the Emergency Act. Great credit redounds to the Governor for his initiative in fully realizing the seriousness of a tense situation and then immediately putting to work the available resources at his command. His remarkable ability, activity and energy will go down in history as most commendable in the Massachusetts flood and hurricane disaster of 1938.

His Excellency appointed a special committee of three prominent state officials to work in conjunction with this division: General Charles H. Cole, Adjutant-General's Department; Patrick J. Moynihan, Commissioner of Administration and Finance, and William L. Callahan, Commissioner of Public Works. Their able and cooperative efforts and achievements were con-

spicuously outstanding in conquering an overwhelming catastrophe, far-reaching in its effect.

James T. Moriarty, Commissioner of Labor and Industries, who was present at the Council meeting, quickly sensed the importance of getting started and immediately offered the powerful resources of his department to the division. Through his able initiative the wheels of organization were put into action and office assistants and field agents were placed at our disposal who accomplished most efficient service during the emergency.

For several days following the disaster, various offices having to do with the hurricane and flood kept open house, so to speak, day and night with practically full forces. As far as food, clothing and fuel were concerned, immediate wants and requests were satisfactorily adjusted. There were a few cases of profiteering but, on the whole, complaints were settled to the satisfaction of all parties concerned.

Numerous complaints were received relative to prices charged for repairing electric service pipes. Investigation was made and only one contractor admitted his charge was too high and accordingly adjusted it. The division failed to find increased prices of shingles, glass and lumber. No manufacturer contacted had raised prices of these materials.

Because of inacessibility of roads throughout the commonwealth, the milk supply was somewhat curtailed for the first few days after the catastrophe. Railroads were contacted and through their cooperation cars of milk coming from Portland, Maine, were hurried to destination. After arriving in Boston, engines were immediately attached to take shipments to milk company plants where the milk was pasteurized and delivered to customers within an hour. The milk distributors should be praised for the wonderful work done by them in keeping their customers supplied under the most adverse conditions.

Complaints in regard to charges for removal of trees and debris were carefully checked. No excessive charges were found but, in some instances, a part of the bill rendered was reduced by the contractor.

A survey of the Cape district was made. No profiteering was found. The damage caused by the tidal wave was restricted primarily to summer cottages. There was no shortage of housing accommodations or gasoline. The Red Cross had the situation well in hand at the time of the survey three days after the flood.

On Thursday, following the flood and hurricane, speedy relief was initiated and distributed to various towns in the afflicted areas, including Wareham, Holden, Ware, Gilbertville, South Barre, Amherst and Hatfield. Supplies consisted of food, shoes, clothing of all kinds, medical supplies, kerosene and hardware materials.

The Commissioner of Labor and Industries assigned his eighteen inspectors to those districts particularly afflicted, and four of said inspectors spent from a week to three weeks in the Ware and Gilbertville districts. All together, three truck loads of food were distributed equally to Ware, Gilbertville and South Barre, a total of 1800 rations—enough to last the needy people for a period of three days.

In Wareham rations for three days for 400 people were provided. This town was severely hard hit by the tidal wave, and hosiery and shoes were sent to the stricken area.

In the Ware district, 900 gallons of kerosene and hundreds of flash lights were transported by automobile from Boston and distributed in Gilbertville, there being no electricity available. Flash lights were also distributed in Amherst and Hatfield.

The catastrophe which visited Massachusetts in 1938 will go down in the history of the commonwealth as the greatest calamity of all time, considering loss of life, wreckage of property, and irreparable losses of all descriptions.

Trend of Living Costs

The division records prices largely from the viewpoint of the consumer, and for the purpose of recording the trend of retail prices, it collects, compiles and publishes what is called a "cost of living index".

This index is supplied upon request to industrial, business, and labor organizations, welfare societies, financial interests, schools and colleges, mercantile establishments, national, state and municipal government officials, and interested individuals.

The information relative to prices supplied in the compilation of this index enables the division to combat propaganda based on the incomplete and inaccurate information relative to living costs and market conditions which tend to discredit Massachusetts.

This index is widely used in the settlement of wage and salary disputes. In the arbitration of such disputes, due consideration should be given to a changed living standard, which cannot be considered in computing the index without destroying its comparative value.

During 1938, the combined index decreased from 141.8 in January to 139.6 in December. The low point of 138.9 was for the month of May. Comparable combined index numbers for 1937 and 1938 are given in the following table:

Combined Cost of Living Index — 1913 = 100

	1937	*1938*		*1937*	*1938*
January	140.5	141.8	July	143.5	140.8
February	140.9	139.2	August	145.5	140.4
March	141.7	139.8	September	146.3	140.7
April	140.7	139.2	October	145.0	140.2
May	141.0	138.9	November	143.9	139.7
June	142.6	139.9	December	142.1	139.6

Expressed in dollars, these index numbers indicate that $141.80 was required in January, 1938, the high point of the year, to purchase the same quantity of commodities that cost $138.90 in May, $139.60 in December, and $100.00 in 1913, the base year.

The foregoing table indicates that the trend of living costs decreased up to May, at which time the low point for 1938 was reached. The average combined index figure for 1937 was 142.8 and 139.9 for 1938.

Elements of the Budget

Food.—The index of combined food prices decreased about 2 2/3% during the year 1938 from 121.1 in January to 117.9 in December. The low point of 116.9 was reached in the month of May.

The index for combined meats, which was 135.8 in January, decreased to 126.5 in February, the low point of the year, then steadily increased to 150.9 in July, the high point of the year, from which time monthly decreases were noted to 138.6 in December.

Food represents the largest single item of expense in the budget, and is allotted 37.6% of the total family expenditures for all items. The amount actually spent for food, however, depends upon the size of the family, the age and type of employment of the individual members.

Cold storage.—The control and inspection of all foods held in cold storage in Massachusetts functions under the State Department of Public Health, which issued monthly statements in regard to the amount of food held in cold storage warehouses. Speculation and manipulation of supplies through the use of these warehouses are, therefore, practically eliminated. Comparative stocks of food held in storage in December, 1937, and December, 1938, are given below:

Commodity	*1937*	*1938*
Beef	915,408 lbs.	930,963 lbs.
Pork	1,180,007 "	1,830,117 "
Lamb and Mutton	85,436 "	171,663 "
Miscellaneous meats	789,451 "	1,161,325 "
Total poultry	5,248,277 "	6,400,905 "
Butter	2,589,801 "	1,552,159 "
Eggs (case)	1,052,850 doz.	318,480 doz.
Eggs (frozen)	3,016,755 "	2,451,488 "
Haddock fillets	4,008,318 lbs.	3,812,259 lbs.
Cod, haddock, pollock, hake	6,761,397 "	6,319,561 "
Mackerel	2,393,073 "	3,315,124 "

Commodity	1937	1938
Whiting	3,693,281 "	6,500,578 "
Whiting	1,232,755 "	584,450 "
Squid	1,232,755 "	584,450 "
Herring	733,340 "	370,166 "
Herring (cured)	831,098 "	1,023,182 "
Halibut	306,175 "	234,787 "
Other Miscellaneous	5,261,932 "	3,475,479 "

Meat.—The budget allowance for meat represents about one-third of the total for food; therefore a substantial increase or decrease in meat prices greatly affects the family expenditure.

Comparative Table of Combined Meat Index

	1937	1938		1937	1938
January	140.6	135.8	July	159.0	150.9
February	141.2	126.5	August	169.8	147.4
March	143.9	128.5	September	175.4	147.4
April	141.5	134.8	October	164.4	145.4
May	146.7	137.1	November	154.5	143.3
June	153.0	139.5	December	142.0	138.6

The index for combined fresh beef was 140.5 in January, then decreased to 127.9 in March, but increased to 157.7 in July. The index for December of 148.5 was about 5 7/10% higher than for the beginning of the year.

Comparative Table of Combined Fresh Beef Index

	1937	1938		1937	1938
January	145.3	140.5	July	162.0	157.7
February	145.5	128.5	August	171.9	154.5
March	147.8	127.9	September	183.0	151.5
April	143.3	135.6	October	174.1	153.2
May	149.5	139.5	November	160.7	149.0
June	156.8	143.7	December	145.4	148.5

Clothing.—The clothing section of the budget represents 12.8% of the total expenditures divided about equally between the men's and women's sections. A general decrease was noted in this index during the year from 159.2 in January to 148.9 in December, the low point of the year. The largest decrease occurred in the prices of suits, the index for January being 172.9 and for December, 158.5. Prices of both men's and women's shoes were higher in December than for January. Other items showed only slight changes.

Clothing is a much more important item in the family budget of Massachusetts than in some other sections of the country, as the changeable and variable climate demands a large variety of articles of wearing apparel. They can be purchased, however, at a wide variation of prices, dependent upon the make-up of the garment. Articles made from the same or similar cloth, but tailored by mass production with make-up costs cut to a minimum, may be purchased at a wide difference in retail price. It is also noted that in the case of women's garments, many lower priced tailoring establishments have designers continually employed, whose sole job it is to visit higher priced shops for the purpose of copying the latest styles in garments. These designers are so expert at their trade that it is almost impossible to determine any style defects.

It is readily observed that standardization of the clothing section is almost impossible, and for this reason the sampling method, or prices of goods entering into the make-up of garments with the exception of certain staple items, is used in the compilation of this budget.

Fuel and Light.—The study and investigation of the circumstances affecting the supply and prices of various fuels is one of the duties of the division, and in this connection numerous data is collected, compiled and published at regular intervals. Other information is supplied to numerous organizations, governmental departments and individuals. Much of this information is used in connection with rate cases held by the Interstate Commerce Commission and other official hearings and investigations.

The changeable and uncertain climate of Massachusetts makes fuel of some type one of the most important items of the budget, and high fuel prices necessarily affect all our citizens. It is, therefore, desirable that information be available relative to receipts, stocks, deliveries and prices of all fuels used for heating purposes in Massachusetts.

The division has so conducted these important surveys that in the past, during periods of suspension of mining operation, or other interference with normal movement of fuels, little, if any, price increases have occurred in direct contrast to changes in nearby states.

Anthracite was formerly the favorite fuel of Massachusetts, but substitute fuels have displaced a large tonnage of this favorite during the past few years. Fuels used for home heating during the 1936-1937 and 1937-1938 coal years are given below:

Fuel	*1936-1937*	*1937-1938*
Anthracite (Domestic Sizes)	2,483,000 net tons	2,483,000 net tons
(Buckwheat Sizes)	178,000 " "	192,000 " "
Coke	1,027,000 " "	919,000 " "
Bituminous Coal	900,000 " "	823,000 " "
Briquets	56,000 " "	46,000 " "
Other Manufactured Fuel	5,000 " "	12,000 " "
Oil	750,000,000 gallons	795,000,000 gallons
Gas Installations, Central Heating Plants	7,427	7,977
Gas (estimated)	3,301,593,000 cu. ft.	3,269,266,000 cu. ft.

Domestic anthracite deliveries for the first six months of the 1938-1939 coal year amounted to 859,543 net tons compared to 980,982 net tons for the same period of the 1937-1938 coal year.

Oil deliveries have continued to increase from year to year, and today oil is one of the most popular fuels. The use of range oil burners at the beginning and the end of the heating season tends to curtail somewhat the purchasing of solid fuel.

A compilation of statistics relative to receipts, stocks, prices, deliveries, etc., is contained in the tables in the Appendix of this report.

Shelter.—The shelter index, which represents 21.8% of the total budget, decreased during the year from 154.0 in January to 153.5 in April.

Increased rentals in effect last year could not be kept up as there was a return to the tenant's market to a slight degree. It became necessary for families to again double up due to economic conditions.

Complaints relative to vacate notices, refusal or neglect to supply services, poor condition of stoves and heating apparatus, and inability to collect rents were received by this division. In practically all cases an amicable agreement was reached. Many cases might have led to serious trouble or court action.

Sundries.—The sundries section of the budget is given a weighting of 22.8% of total expenditures. This list includes such items as ice, carfare, entertainment, medicine, insurance, church, tobacco, reading matter, house furnishings, organizations, candy, soft drinks, etc. During the year the index for this group increased from 152.7 to 154.3, due to increases in the price of car fares.

Sundries comprise goods and services, not elsewhere specified, that are felt to be necessary for the operation of the home.

APPENDIX I

Cost of Living Curve

Statistical Method and Tables of Proportion and Prices

The division and its predecessor the Special Commission on the Necessaries of Life have used in the computation of the Massachusetts cost of living index the same percentages for the major sections of the budget as those used by the National Industrial Conference Board, until July of 1931. These weights, together with others which applied to many individual items of the budget, were changed in 1931 after much study and investigation, and the division believes that the new allocation of weights represents the relative importance of items and groups to a greater degree of accuracy.

The present allocation of weights for the major budget sections are as follows:

Food	37.6
Clothing	12.8
Shelter	21.8
Fuel and Light	5.0
Sundries	22.8

In computing an index of living costs, a list of representative articles in common use is first selected, and it is then necessary to assign importance to them in the total, in proportion to the extent to which they are commonly used. Food represents a much larger expenditure than ice or fuel; and in the list of foods a 20 per cent increase in the price of meats is much more important than a hundred per cent increase in the price of pepper or salt. The proportions assigned to the various commodities are called weights or weightings, and an index so constructed as to recognize the relative importance of different articles is called a "weighted index." The list of articles and weightings adopted by the division are given in detail in Tables 1 to 5, inclusive.

Having selected the list of commodities, some particular time must be chosen as a basis of comparison, and all prices at that time are called base prices, represented by 100 per cent in the scale. For the Massachusetts index, the calendar year 1913 was selected as a base year because this gave a true, pre-war picture. Monthly quotations have been secured before and after the basic period, and each quotation is divided by the basic quotation to give the index number for the later month. Monthly quotations since 1910 have been used in the case of foods. Thus the basic, or 1913, quotation on flour was 91 cents per one-eighth barrel bag, and in November, 1938, the price was $.9088, which, divided by the base, gave the index number for flour as 99.6 in November, 1938. Each quotation is in turn divided by the base price, and a table of index numbers, or percentages, is the result. A table is made for each commodity, and then the index numbers are combined using the weightings to which reference has been made. A different selection of commodities and a different selection of weightings will cause the indices to be quite different. Each is a true presentation of certain facts; no index can present all of the facts. In its studies the division has endeavored to choose not only the most necessary commodities, but also to combine them in proper proportions, so that a fair presentation is made of conditions in Massachusetts.

Some idea of the magnitude of work involved in making an index may be had when it is realized that over 400,000 computations were made in constructing the original index of living costs.

Food Index

The index of foods, which has a weighting of 37.6 in the total, is a composite based upon the selling prices of thirty-seven articles of food. These articles of food are assigned weights in accordance with their relative importance. The allocation of these weights follow:

Table 1.—Allocation of Commodity Weights in the Food Index

Fresh beef	1,605	Tea	187
Salt beef	242	Coffee	287
Fresh hog products	379	Sugar	518
Salt hog products	361	Molasses	45
Other meat	363	Flour and meal	480
Poultry	301	Bread	526
Fish	298	Rice	57
Eggs	570	Potatoes	457
Milk	788	Other vegetables	476
Butter	881	Fruit	253
Cheese	75	Vinegar, pickles and condiments	80
Lard	241	Other food	530
Total			10,000

Table 2.—List of Commodities in Combinations Included in the Food Index

Fresh beef: Steak, sirloin steak, and rump steak. Roasts and stews: Chuck roast, round beef. (The above cuts are given equal weight in the item of fresh beef.)

Salt beef: Fancy brisket.

Fresh hog products: Fresh pork loins.

Salt hog products: Ham, bacon, salt pork. (The above cuts are given equal weight in the item of salt hog products.)

Other meat: Lamb. Veal. (Lamb is given a weighting of 2 and veal 1 in the item of other meat.)

Poultry: Fowl.

Fish: Salt cod. Fresh haddock. (The above are given equal weight in the item of fish.)

Flour and meal: Wheat flour. Corn meal. (Flour is given a weighting of 3 and corn meal 1 in the item of flour and meal.)

Other vegetables: Onions. Canned tomatoes. Canned peas. Canned corn. (The above are given equal weights in the item of other vegetables.)

Fruit: Evaporated apples. Prunes. (The above are given equal weights in the item of fruit.)

Other food: Dried beans. Oatmeal. (Dried beans are given a weighting of 2 and oatmeal 1 in the item of other food.)

Shelter Index

The index of shelter, which has a weighting of 21.8, is based on rentals charged for many houses in many parts of the Commonwealth. These ranged in 1910 from $12 to $32 per month, and in November, 1938, from $20 to $50 per month. The list includes single, two-family, and three-family houses, and middle-priced apartments, heated and unheated, but does not include mercantile or office buildings.

Clothing Index

The index of clothing, which has a weighting of 12.8 in the total budget, is derived from quotations on the following articles. The weighting of the various articles of clothing, as combined in the clothing index, is also shown.

The standard blue serge has been used as the basis for quotations for men's outer garments. Overcoats have varied in weight and style, and it has been almost impossible to find a standard for quotation. Overcoating fabric prices of uniform weight have, however, advanced in the same ratio as blue serge prices and, therefore, the index of the serge suit cost, which is almost identical with the index serge fabric costs, has been used as a basis for the suit, overcoat and trousers item. For night garments the composite of cotton fabrics has been used, as all cheaper cotton fabrics have advanced in nearly the same ratio, and the quotation will therefore cover night garments made of either canton or domet flannels or long cloth. In the list of women's clothes the same index based upon blue serge has been used for the topcoat, suit and street dress. The items of night gowns, slips, kimonos, waists, house dresses and aprons are combined, and the average index of cotton piece goods has been used.

Table 3.—Allocation of Weightings in the Clothing Index

	Men's		
Overcoats, suits, trousers	48	Shirts	7
Shoes	9	Collars	1
Hats	6	Underwear	3
Gloves	2	Night garments	3
Socks	5		—
Total			84

	Women's		
Suits, topcoats, street dresses	42	Gloves	2
Underwear	4	Hosiery	7
Waists, kimono, house dresses, aprons, nightgowns, slips	10	Corsets	2
		Hats	5
Shoes	8		
Total			80

Fuel, Heat and Light Index

The index for fuel, heat and light, which has a weighting of 5.0, is based upon selling prices of coal and kerosene throughout the State, and upon the rates for gas and electricity in the following cities: Boston, Springfield, Worcester, Lawrence, Lowell, New Bedford and Fall River.

The weightings assigned to these different commodities are based upon a study of family expenditures, and are gauged to cover conditions in wage-earning families throughout the State. The weightings are as follows:

Table 4.—Allocation of Weightings in the Fuel Index

Coal	61	Gas	20
Kerosene	4	Electricity	15
Total			100

Sundries Index

For sundries, substantially the same list of commodities that is quoted in the report of the National Industrial Conference Board (Research Report No. 22) has been used with the addition of ice. The list, together with weightings assigned to the different commodities, is as follows:

Table 5.—Allocation of Weighting in the Sundries Index

Ice	847	Tobacco, etc.	589
Carfare	1,056	Reading	934
Entertainment	902	House furnishings	1,834
Medicine	1,015	Organizations	879
Insurance	1,111	Candies, soft drinks, etc.	322
Church	511		
Total			10,000

It should be noted that no provision is made in the above classification for savings other than insurance.

Table 6.—Cost of Living Index Numbers by Elements.

Elements	January	February	March	April	May	June	July	August	September	October	November	December
1919												
Food	180.1	174.2	174.1	176.6	179.7	181.0	182.2	187.4	182.0	184.7	188.9	189.1
Clothing	221.5	223.5	223.8	235.3	235.8	235.8	235.8	237.2	240.9	256.3	271.6	272.3
Shelter	118.4	118.4	118.4	115.5	115.5	115.5	115.5	115.5	115.5	129.6	129.6	129.6
Fuel and light	143.1	135.1	135.1	135.7	140.0	144.3	145.8	150.1	150.1	150.7	152.9	153.5
Sundries	155.0	155.0	155.0	156.0	158.0	160.0	163.0	165.0	167.0	172.0	175.0	175.0
Combined	167.5	164.7	164.7	167.0	169.1	170.3	171.5	174.6	173.1	179.9	184.5	184.7
1920												
Food	200.9	195.5	198.9	198.2	207.9	207.9	216.9	205.1	202.5	194.7	187.2	179.6
Clothing	286.2	291.3	299.8	305.5	302.0	288.4	280.9	282.9	285.9	268.9	258.3	226.0
Shelter	131.0	131.0	131.0	133.8	134.9	139.4	139.4	142.4	147.8	147.8	150.6	151.7
Fuel and light	154.2	160.7	161.6	170.8	171.1	171.7	172.1	175.0	188.5	189.2	190.0	189.9
Sundries	175.9	175.9	175.9	183.0	183.0	185.0	185.0	185.0	188.0	190.0	192.0	192.0
Combined	192.0	190.8	193.4	196.3	200.3	199.7	202.6	198.5	200.1	194.9	191.3	183.9
1921												
Food	171.5	158.6	145.1	142.1	135.3	133.5	139.5	142.0	139.9	138.7	137.2	139.4
Clothing	219.9	214.4	208.2	206.5	201.6	197.1	191.8	187.1	186.7	186.2	187.6	186.1
Shelter	151.7	151.7	153.2	156.3	159.4	159.4	159.4	159.4	161.0	161.0	161.0	161.0
Fuel and light	188.8	188.3	187.5	177.4	176.8	176.1	175.9	175.9	175.4	180.9	180.0	180.5
Sundries	192.0	190.0	190.0	188.0	188.0	185.0	183.0	183.0	180.0	180.0	180.0	178.0
Combined	179.5	172.9	166.4	164.5	161.4	159.4	160.8	161.4	160.0	159.7	159.2	159.6
1922												
Food	136.1	135.6	133.1	135.4	134.0	134.1	137.2	136.3	136.3	138.2	139.9	139.8
Clothing	180.1	179.2	176.9	176.5	176.1	176.5	176.1	174.9	177.6	178.4	179.1	179.4
Shelter	162.5	162.5	162.5	162.5	162.5	162.5	162.0	162.0	162.0	162.0	162.5	162.5
Fuel and light	174.9	174.9	173.7	172.8	172.8	172.7	172.0	172.9	177.0	182.6	184.5	184.8
Sundries	178.0	177.0	177.0	174.0	174.0	174.0	174.0	172.0	169.7	169.7	169.7	168.8
Combined	157.3	156.8	155.3	155.6	154.9	155.0	156.2	155.3	155.4	156.6	157.7	157.5

Table 6.—Cost of Living Index Numbers by Elements—Continued

1923

Elements	January	February	March	April	May	June	July	August	September	October	November	December
Food	139.3	141.3	138.8	139.3	141.0	140.0	143.4	142.0	143.5	144.9	142.0	144.1
Clothing	178.0	182.2	182.8	184.0	183.2	184.1	182.1	182.2	183.4	185.9	187.0	186.1
Shelter	162.5	162.5	164.5	166.0	166.5	167.0	167.0	167.0	167.0	167.5	167.5	167.5
Fuel and light	184.8	184.2	178.2	178.6	177.5	177.4	178.2	177.0	177.7	181.6	182.1	184.7
Sundries	168.8	168.8	168.8	170.5	170.5	170.5	170.5	170.5	170.5	170.5	170.5	170.5
Combined	157.1	158.5	157.5	158.5	159.1	158.9	160.1	159.5	160.3	161.6	160.5	161.3

1924

Food	141.0	139.9	139.0	136.1	136.4	137.1	137.5	138.5	142.4	142.1	141.5	143.0
Clothing	186.8	187.4	186.0	184.9	183.3	181.6	181.4	178.8	180.6	180.1	178.4	181.2
Shelter	168.0	168.0	168.0	168.0	168.0	168.0	168.0	172.0	172.0	172.0	172.0	172.0
Fuel and light	178.4	178.6	178.8	177.1	177.0	177.2	177.5	177.4	179.6	179.3	179.5	179.5
Sundries	171.4	171.4	171.4	171.4	171.4	171.4	171.4	170.5	170.5	170.5	170.5	172.2
Combined	160.1	159.7	159.2	157.7	157.6	157.7	157.8	158.4	160.5	160.3	159.8	161.2

1925

Food	144.7	142.8	144.4	143.4	143.7	146.8	147.9	150.3	150.3	153.1	154.1	155.6
Clothing	177.9	177.6	181.6	181.2	180.8	182.3	182.1	180.7	181.1	181.5	182.1	186.6
Shelter	172.0	172.0	172.0	172.0	172.0	172.0	172.0	172.0	170.0	170.0	170.0	170.0
Fuel and light	179.9	180.0	175.6	175.7	175.7	176.6	178.5	181.2	181.2	181.2	186.4	197.4
Sundries	172.2	172.2	172.2	172.2	172.2	172.2	172.2	172.2	171.4	171.4	171.4	172.2
Combined	161.5	160.6	161.6	161.1	161.2	162.8	163.4	164.4	163.9	165.1	165.9	168.0

1926

Food	151.8	153.9	149.2	151.9	148.0	148.3	147.7	145.4	146.8	147.3	147.4	147.9
Clothing	184.5	181.7	182.3	179.2	180.3	181.2	178.6	178.7	177.0	177.7	177.5	177.5
Shelter	170.0	170.0	170.0	170.0	168.0	168.0	168.0	168.0	168.0	168.0	168.0	168.0
Fuel and light	214.6	198.0	183.3	181.4	181.9	182.0	183.3	184.4	184.4	185.2	185.7	185.5
Sundries	172.2	172.2	172.2	172.2	170.5	170.5	169.7	169.7	169.7	170.5	171.4	171.4
Combined	167.0	166.6	163.9	164.5	162.3	162.5	161.9	160.9	161.3	161.8	162.1	162.3

1927

Food	145.9	143.7	142.1	143.4	145.7	145.5	142.8	142.2	142.6	142.1	144.6	145.0
Clothing	176.1	176.3	175.1	175.0	173.9	173.3	170.2	171.6	172.5	172.1	172.8	172.8
Shelter	168.0	168.0	166.0	166.0	1 6.0	166.0	166.0	165.0	165.0	165.0	165.0	165.0
Fuel and light	185.4	185.3	184.6	181.6	178.5	178.4	179.0	179.3	181.5	181.5	181.5	181.4
Sundries	171.4	171.4	171.4	170.5	.5	170.5	170.5	170.5	169.7	169.7	170.5	170.5
Combined	161.2	160.3	159.0	159.2	159.9	159.7	158.6	158.0	158.2	158.0	159.3	159.5

1928

Food	145.4	144.2	142.2	144.6	146.1	144.6	148.6	149.3	152.7	150.0	149.0	147.6
Clothing	172.6	172.7	172.6	171.7	173.8	172.1	172.5	170.9	171.5	169.3	171.5	172.8
Shelter	165.0	165.0	165.0	165.0	165.0	165.0	165.0	163.0	163.0	163.0	163.0	163.0
Fuel and light	181.4	181.4	181.2	175.4	175.4	175.4	175.4	175.5	177.9	177.9	179.7	179.6
Sundries	170.5	169.7	169.7	168.8	170.0	170.0	170.0	170.0	170.0	170.0	170.0	170.0
Combined	159.6	158.9	158.0	158.4	159.6	158.7	160.5	160.3	161.9	160.5	160.5	160.0

1929

Food	148.5	146.5	147.6	147.7	149.1	148.1	151.8	154.7	153.0	152.1	149.3	148.9
Clothing	173.3	170.1	174.1	173.6	173.6	173.6	172.2	173.6	173.2	173.5	173.6	174.0
Shelter	163.0	163.0	163.0	163.0	163.0	163.0	163.0	163.0	163.0	163.0	163.0	163.0
Fuel and light	179.5	179.6	179.7	177.9	174.2	174.2	176.4	176.3	178.9	179.0	179.1	179.3
Sundries	170.0	169.2	169.2	168.9	168.9	167.9	167.7	167.7	167.7	168.4	169.2	169.2
Combined	160.5	159.0	160.0	159.8	160.2	159.6	161.1	162.5	161.9	161.7	160.7	160.6

1930

Food	146.4	145.8	141.9	142.1	141.7	139.3	137.6	136.6	137.2	137.0	132.9	130.8
Clothing	173.6	173.6	173.5	173.3	173.1	173.0	172.4	172.7	171.6	168.8	165.5	164.0
Shelter	163.0	163.0	163.0	163.0	163.0	161.0	161.0	161.0	161.0	161.0	161.0	160.5
Fuel and light	179.4	179.4	178.3	178.1	170.7	170.7	172.1	174.3	175.0	175.8	175.4	175.5
Sundries	169.2	168.1	167.2	167.2	167.0	166.9	166.5	165.7	165.7	165.3	165.6	165.0
Combined	159.4	158.9	157.0	157.1	156.4	155.0	154.2	153.7	153.9	153.4	151.2	149.9

Table 6.—Cost of Living Index Numbers by Elements—Concluded

Elements	January	February	March	April	May	June	July	August	September	October	November	December
1931												
Food	128.5	121.3	120.9	118.9	115.9	115.0	115.7	117.0	117.4	115.1	111.5	107.8
Clothing	162.4	157.4	156.6	154.5	151.0	149.2	149.1	148.6	148.4	148.0	145.8	145.0
Shelter	160.5	156.0	156.0	156.0	155.0	155.0	155.0	153.0	153.0	151.0	151.0	151.0
Fuel and light	175.5	175.4	175.8	166.0	163.1	163.1	164.9	165.5	167.5	168.3	168.7	168.1
Sundries	164.2	163.8	162.2	161.3	158.8	157.5	157.5	157.0	157.0	156.6	156.0	154.6
Combined	148.6	143.9	143.3	141.5	141.1	140.2	140.5	140.4	140.7	139.3	137.5	135.7
1932												
Food	105.6	102.2	100.3	98.6	96.2	93.0	98.8	99.3	99.2	97.4	95.8	94.9
Clothing	138.8	135.9	135.2	132.2	128.8	124.7	125.4	123.9	122.0	123.9	120.4	121.7
Shelter	151.0	150.0	150.0	150.0	150.0	150.0	150.0	150.0	135.0	135.0	135.0	135.0
Fuel and light	168.0	164.0	164.0	155.8	154.2	153.5	154.9	154.9	158.9	159.0	157.3	156.8
Sundries	154.6	152.9	152.9	152.9	151.2	151.2	152.9	152.9	152.9	152.9	150.1	150.1
Combined	134.0	131.6	130.8	129.3	127.5	125.8	128.5	128.5	125.2	124.7	122.7	122.8
1933												
Food	91.6	87.9	86.5	86.6	89.7	92.1	100.0	102.1	103.8	104.2	103.2	101.6
Clothing	121.2	121.5	119.1	120.7	121.7	124.6	126.6	130.8	135.7	140.4	142.6	143.4
Shelter	135.0	135.0	133.0	133.0	133.0	133.0	133.0	133.0	133.0	135.0	135.0	135.0
Fuel and light	157.1	157.0	156.9	156.2	150.4	148.8	150.1	151.1	154.6	155.3	155.4	155.1
Sundries	148.8	148.8	148.8	148.8	148.8	149.0	149.0	149.4	150.4	151.1	151.1	151.1
Combined	121.2	119.8	118.5	118.9	119.7	121.0	124.3	125.7	127.4	128.8	128.7	128.2
1934												
Food	100.2	103.9	105.4	105.2	106.7	107.0	110.1	112.1	114.1	113.8	112.6	110.9
Clothing	145.2	145.9	148.0	146.4	147.2	147.7	146.5	145.9	147.8	149.0	149.9	148.9
Shelter	138.0	138.0	138.0	138.0	138.0	138.0	138.0	138.0	139.0	139.0	139.0	139.0
Fuel and light	155.1	155.8	155.0	154.5	150.3	150.8	152.2	153.7	156.6	156.9	156.4	156.7
Sundries	152.2	152.2	152.2	152.2	153.9	153.9	153.9	153.6	153.6	153.6	153.6	153.5
Combined	128.8	130.3	131.1	130.8	131.6	131.9	132.9	133.6	135.0	135.0	134.7	133.9

1935

Food	116.0	120.9	122.7	124.2	123.6	121.6	121.8	124.5	126.3	124.2	125.3	123.9
Clothing	148.7	146.9	146.4	147.5	148.1	147.6	149.9	146.4	147.9	148.2	146.9	146.5
Shelter	139.0	139.0	139.0	139.0	139.0	139.0	139.0	142.0	142.0	142.0	142.0	142.0
Fuel and light	156.5	156.6	156.8	142.9	141.9	142.2	142.9	144.2	146.5	150.6	150.5	150.4
Sundries	153.5	153.5	153.3	153.3	153.3	153.3	153.3	153.3	153.3	153.3	153.3	152.7
Combined	135.8	137.4	138.0	138.0	137.8	137.0	137.4	138.7	139.7	139.1	139.3	138.6

1936

Food	120.0	120.6	119.1	118.2	120.4	120.6	122.3	120.9	121.4	119.3	120.6	122.3
Clothing	145.5	147.5	146.9	146.1	144.5	144.9	145.6	145.3	145.4	142.8	144.6	145.1
Shelter	142.0	142.0	142.0	142.0	145.0	145.0	145.0	145.0	145.0	145.0	145.0	150.0
Fuel and light	150.6	150.6	151.0	148.5	144.9	145.7	146.1	147.3	149.1	149.9	150.2	150.3
Sundries	152.7	152.7	152.7	152.7	152.7	152.7	152.7	152.7	152.2	152.2	152.2	151.8
Combined	137.0	137.5	136.9	136.3	137.4	137.6	138.4	137.8	138.0	136.9	137.7	139.4

1937

Food	124.7	125.1	127.4	125.4	126.8	127.5	129.0	133.5	134.9	131.7	127.8	122.5
Clothing	146.4	148.3	147.6	147.1	147.5	149.0	151.9	153.5	155.0	154.2	156.5	157.3
Shelter	150.0	150.0	150.0	150.0	150.0	154.0	154.0	154.0	154.0	154.0	154.0	154.0
Fuel and light	150.5	151.5	151.8	148.7	143.6	143.6	142.5	144.9	147.1	147.9	149.0	149.7
Sundries	151.8	151.8	151.8	151.8	151.8	152.7	152.7	152.7	152.7	152.7	152.7	152.7
Combined	140.5	140.9	141.7	140.7	141.0	142.6	143.5	145.5	146.3	145.0	143.9	142.1

1938

Food	121.1	116.0	117.0	117.7	116.9	119.1	122.2	119.7	119.2	119.2	118.0	117.9
Clothing	159.2	154.3	155.9	150.8	150.5	152.6	149.9	151.2	153.8	150.0	149.5	148.9
Shelter	154.0	154.0	154.0	153.5	153.5	153.5	153.5	153.5	153.5	153.5	153.5	153.5
Fuel and Light	150.0	149.8	149.5	148.4	147.1	147.3	147.3	147.8	150.1	151.1	151.6	151.7
Sundries	152.7	152.7	152.7	152.7	152.7	152.7	152.7	154.3	154.3	154.3	154.3	154.3
Combined	141.8	139.2	139.8	139.2	138.9	139.9	140.8	140.4	140.7	140.2	139.7	139.6

Appendix II

Fuel Statistics

Table 1.—New England Anthracite Tidewater Receipts by States—Net Tons

	Maine	New Hampshire	Massachusetts	Rhode Island	Connecticut	Total
1929	236,454	16,637	1,227,447	328,590	450,372	2,259,500
1930	274,540	17,425	1,235,486	271,210	422,441	2,221,102
1931	164,271	18,295	1,124,778	282,389	347,743	1,937,476
1932	148,217	9,732	1,013,674	212,103	275,210	1,658,936
1933	195,414	7,066	1,027,337	202,195	258,452	1,690,464
1934	167,891	20,389	946,203	189,512	265,941	1,589,936
1935	121,265	7,325	802,387	204,720	236,596	1,372,293
1936	126,697	14,039	791,972	198,647	266,718	1,398,073
1937	81,403	10,502	604,397	151,931	199,632	1,047,865
1938	93,116	2,203	554,084	136,768	190,999	977,170

*Table 2.—*New England Anthracite Imports by States—Net Tons*

	Maine and New Hampshire	Vermont	Massachusetts	Rhode Island	Connecticut	Total
1929	46,493	43	321,977	115,468	–	483,981
1930	161,531	–	390,645	96,713	4,098	657,987
1931	61,823	–	412,524	122,595	13,703	610,645
1932	50,262	–	413,161	96,599	7,375	567,397
1933	18,864	–	336,829	67,512	7,392	430,597
1934	34,551	–	331,079	93,562	17,892	477,084
1935	36,947	–	397,508	105,039	18,630	558,724
1936	49,669	297	418,106	103,717	26,029	597,818
1937	32,767	–	287,384	62,551	12,611	395,313
1938	32,436	3	264,466	54,640	11,320	362,865

*Included in above receipts.
Source: Bureau of Foreign & Domestic Commerce, Washington, D. C.

Table 3.—New England Anthracite All-Rail Receipts by Roads—Net Tons

	N. Y., N. H. & Hartford	Boston & Maine	Boston & Albany	Central Vermont	Rutland	Total
1929	3,536,979	2,270,126	745,828	116,534	111,424	6,780,891
1930	3,302,715	1,990,504	660,106	110,868	104,988	6,169,181
1931	2,761,555	1,671,319	500,372	97,137	95,047	5,125,430
1932	2,170,685	1,293,753	353,056	78,796	83,497	3,979,787
1933	1,983,750	1,122,102	299,389	79,837	76,941	3,562,019
1934	2,407,555	1,415,482	372,645	101,600	85,152	4,382,434
1935	2,175,131	1,330,199	347,998	96,162	80,376	4,029,866
1936	2,065,518	1,292,195	351,893	94,501	84,560	3,888,667
1937	1,993,052	1,228,205	319,157	88,445	83,875	3,712,734
1938	1,896,921	1,120,156	314,597	80,884	78,142	3,490,700

Table 4.—Deliveries of Domestic-Sized Anthracite and Average Retail Prices Per Net Ton for Certain Representative Municipalities of Massachusetts with Four or More Dealers

City or Town	Deliveries[1]		Average Retail Prices October 1, 1938	
	1937–1938 Coal Year	1938 Apr. 1–Sept. 30 (6 mos. coal yr.)	Stove	Pea
Boston District[2]	926,232	324,090	$12.75	$11.50
Adams	10,676	3,403	13.00	11.75
Brockton	25,646	5,721	14.10	11.10
Fall River	38,160	15,113	14.25	10.00
Fitchburg	18,966	5,506	13.25	11.50
Gloucester	19,653	8,252	13.25	11.25
Greenfield	14,082	5,167	13.50	12.00
Haverhill	26,980	12,672	12.25	10.25
Holyoke	29,719	11,283	13.10	11.50
Lawrence	45,732	20,188	13.50	12.50
Leominster	16,821	5,883	13.10	11.75
Lowell	47,009	14,258	13.25	11.25
Lynn	82,390	34,662	12.65	10.90
New Bedford	71,008	20,680	13.25	11.25
Newburyport	21,049	5,105	13.25	11.25
North Adams	24,403	8,326	13.00	11.75
Northampton	28,374	10,611	13.50	12.00
Peabody	8,982	3,491	13.50	11.75
Pittsfield	72,492	31,327	12.50	10.60
Salem	38,374	19,712	12.75	11.00
Springfield	99,454	31,560	13.25	11.45
Taunton	23,828	9,930	13.75	9.95
Westfield	13,105	2,951	13.25	11.75
Woburn	8,374	3,461	12.40	11.15
Worcester	92,239	29,363	13.50	11.35
City of Boston	590,549	220,003	12.50	11.45
Cambridge	48,173	13,598	12.65	11.25
Chelsea	21,058	6,131	12.60	11.25
Malden	17,823	2,630	12.40	10.85
Medford	16,174	5,246	12.40	11.25
Newton	30,450	10,295	13.10	12.00
Quincy	22,397	6,220	13.00	11.75
Revere	8,068	1,920	12.60	11.50
Somerville	48,176	15,667	12.60	11.25
Waltham	28,696	9,000	13.35	12.00
Watertown	20,560	5,843	13.35	12.00

[1] Foreign Anthracite deliveries included.
[2] All of above included in Boston District figures together with Arlington, Belmont, Brookline, Everett, Melrose and Milton.

Table 5.—Deliveries of Domestic-Sized Anthracite for last Nine Coal Years—The Commonwealth of Massachusetts

(Coal Year, April 1 to March 31)

	Net Tons
1929–1930	4,703,019
1930–1931	4,177,238
1931–1932	3,565,768
1932–1933	2,968,429
1933–1934	2,938,197
1934–1935	2,637,722
1935–1936	2,608,815
1936–1937	2,483,158
1937–1938	2,483,369
1938–1939 (Six months, April 1 to September 30)	859,543

Population of Massachusetts, 1935 (State Census) 4,350,910.

Table 6.—New England Bituminous Tidewater Receipts by States—Net Tons

	Maine	New Hampshire	Massachusetts	Rhode Island	Connecticut	Total
1929	2,262,177	189,479	8,266,550	1,721,817	2,089,730	14,529,753
1930	2,228,573	110,403	7,985,267	1,480,101	1,947,804	13,752,148
1931	1,658,313	158,381	7,298,032	1,432,536	1,817,958	12,365,220
1932	1,349,142	154,500	6,421,273	1,015,268	1,538,209	10,478,392
1933	1,364,431	202,096	6,716,260	1,196,162	1,718,277	11,197,226
1934	1,576,825	172,782	6,974,780	1,139,020	1,721,280	11,583,687
1935	1,616,357	136,987	6,544,356	1,052,205	1,666,916	11,016,821
1936	1,689,331	134,315	6,704,972	1,129,096	1,918,930	11,576,644
1937	1,696,495	187,506	6,918,651	1,147,418	2,540,237	12,490,307
1938	1,335,671	135,306	5,570,525	834,879	1,766,448	9,642,829

*Table 7.—*New England Bituminous Imports by States—Net Tons*

	Maine and New Hampshire	Vermont	Massachusetts	Total
1929	44,273	–	5,841	50,114
1930	32,313	1	71	32,385
1931	61,463	106	5,159	66,728
1932	53,428	161	–	53,589
1933[1]	32,431	–	–	32,431
1934	35,262	141	62	35,465
1935	55,599	296	6,380	62,275
1936	76,162	2,100	–	78,262
1937	61,351	1,311	–	62,662
1938	34,407	2,313	–	36,720

*Included in above receipts.
[1]First six months only.
Source: Dept. Foreign & Domestic Commerce, Washington, D. C.

Table 8.—New England All-Rail Bituminous Receipts by Roads—Net Tons

	N. Y., N. H & Hartford	Boston & Maine	Boston & Albany	Central Vermont	Rutland	Total
1929	4,023,064	1,043,822	1,195,308	317,535	201,911	6,781,640
1930	3,645,603	1,011,308	1,014,710	277,532	199,887	6,149,040
1931	3,313,695	1,016,494	818,523	265,037	197,046	5,610,795
1932	2,578,317	911,155	655,983	219,966	178,574	4,543,995
1933	2,545,254	1,146,059	684,748	229,732	181,226	4,787,019
1934	2,805,812	1,463,900	724,628	246,883	181,141	5,422,364
1935	2,709,333	1,358,492	681,729	278,339	182,390	5,210,283
1936	2,542,113	1,363,988	691,466	296,444	184,133	5,078,144
1937	2,373,397	1,354,095	672,649	310,049	174,917	4,885,107
1938	1,934,093	1,218,580	553,111	240,131	157,719	4,103,834

Table 9.—New England All-Rail Movement of Coal as Shown by Number of Cars of Coal Passing East Through the Gateways

(Daily Average)

Years	Anthracite				Commercial Bituminous			
	Boston & Maine	Boston & Albany	New York, New Haven & Hartford	Total	Boston & Maine	Boston & Albany	New York, New Haven & Hartford	Total
1927	140	50	210	400	74	62	135	271
1928	137	47	245	429	68	49	108	225
1929	134	43	222	399	74	60	121	255
1930	101	47	202	350	62	51	110	223
1931	75	32	177	284	49	40	102	191
1932	77	23	142	242	47	32	84	163
1933	68	21	133	222	51	34	85	170
1934	86	25	157	268	61	35	95	191
1935	81	24	141	246	57	34	92	183
1936	80	25	136	241	59	33	80	172
1937	75	23	124	222	57	31	75	163
1938	69	22	124	215	47	24	62	133

Table 10.—United States Production—Net Tons

	Anthracite	Bituminous
1929	73,828,000	534,989,000
1930	69,732,000	461,879,000
1931	59,646,000	378,241,000
1932	49,855,000	309,710,000
1933	49,541,000	333,631,000
1934	57,168,000	359,368,000
1935	52,159,000	372,373,000
1936	54,760,000	434,070,000
1937	50,037,000	442,455,000
1938	44,060,000	342,407,000

Summary of Fuels Used for Heating Homes in Massachusetts.—Net Tons

	Anthracite						[2]Other Manufactured		
	[1]Domestic	Buckwheat	Bituminous	Coke	Briquets	Oil (Gals.)	Fuels	[2]Gas (Cu. Ft.)	No. of Homes
1926-1927	5,088,000	150,000	600,000	475,000	125,000	48,000,000	–	–	1,050
1927-1928	4,727,000	185,000	630,000	525,000	190,000	65,000,000	–	–	1,740
1928-1929	4,913,000	138,000	495,000	637,000	193,000	80,000,000	–	–	2,925
1929-1930	4,703,000	160,000	500,000	640,000	190,000	100,000,000	–	–	4,344
1930-1931	4,177,000	175,000	800,000	895,000	150,000	140,000,000	–	–	5,049
1931-1932	3,566,000	150,000	600,000	980,000	125,000	184,000,000	–	–	5,100
1932-1933	2,968,000	155,000	700,000	1,061,000	101,000	300,000,000	–	2,425,060,000	4,927
1933-1934	2,938,000	172,000	800,000	1,318,000	90,000	400,000,000	52,000	2,248,982,000	4,497
1934-1935	2,638,000	191,000	850,000	1,020,000	62,000	500,000,000	15,000	2,853,078,000	6,433
1935-1936	2,609,000	195,000	950,000	1,081,000	66,000	650,000,000	10,000	3,103,192,000	6,827
1936-1937	2,483,000	178,000	900,000	1,027,000	56,000	750,000,000	5,000	3,301,593,000	7,427
1937-1938	2,483,000	192,000	823,000	919,000	46,000	795,000,000	12,000	3,269,286,000	7,977

[1]Includes foreign fuel. [2]Not compiled for these periods.

REPORT OF THE MASSACHUSETTS DEVELOPMENT AND INDUSTRIAL COMMISSION

James A. McDonough, *Chairman;* Arthur L. Race, John J. Kearney, Joseph H. Burke, Edgar J. Arcand, Commissioners. Ex officiis, James T. Moriarty, *Commissioner of Labor and Industries;* William Casey, *Commissioner of Agriculture.*

Bernard J. Doherty, *Secretary.*

The Massachusetts Development and Industrial Commission, established under Chapter 427 of the Acts of 1937, submits its report for the fiscal year ending November 30, 1938.

On August 24, 1938, Chairman Eugene M. McSweeney, who had completed his one-year appointment as member of the Commission on July 20, 1938, retired from the Commission upon qualification by his successor, James A. McDonough. Commissioner McDonough was elected Chairman of the Commission on August 28, 1938.

The Commission held thirty-one regular meetings during the fiscal year ending November 30, 1938.

Industrial Activities

The Commission expanded in the fiscal year 1938 approximately $38,000 for industrial advertising, publicity and promotion with the object not only of bringing new industry here and retaining already established Massachusetts industry but likewise of building up a soundly based opinion in the minds of industrialists, within and without the commonwealth, that Massachusetts offers splendid natural, economic and social advantages to industry.

The paid advertising has been directed through national magazines, chiefly *Time* and *Fortune;* through newspapers and trade magazines. Inquiries from this advertising were serviced by the distribution of two books, published late in 1937, outlining the industrial advantages of Massachusetts.

Publicity has been by means of newspaper releases, special articles and radio addresses.

A direct mail campaign to selected industrial executives was another important part of this program.

Personal cooperation of the Commission staff has been given to many individual manufacturers seeking information, to various association and municipal bodies or committees throughout the state, such as Chambers of Commerce, the Associated Industries of Massachusetts and similar organizations.

Results

The accomplishments of the industrial activities of the Commission are of several kinds:—

1. General influence on industry outside of Massachusetts in the favorable consideration of this state for future location of manufacturing plants.
2. Actual industries which have come to Massachusetts since the inauguration of the industrial advertising campaign.
3. General influence of activities in holding present industry within the state.

A census of new industrial plants and extensions for 1938, made by the Associated Industries of Massachusetts in cooperation with this Commission, the State Department of Labor and Industries and leading Chambers of Commerce, disclose a total of 261 new industries established and substantial expansion is some 84 existing plants.

The survey, admittedly not complete, shows at least 11,672 new jobs for Massachusetts workmen through these new industries and expansions, with more than 1,500,000 square feet of industrial floor space either erected, purchased or leased. Further, the survey indicates more than $5,000,000 was spent for construction or remodelling of plants.

Because of difficulties experienced in getting complete and quick reports at the end of the year on new plants and expansions, steps are being taken to establish a monthly reporting system for the various reporting agencies.

New plants included branches of nationally known Procter and Gamble Company, located in Quincy; Johns-Manville Corporation in Billerica; Consolidated Biscuit Company of Louisville, Kentucky, in West Roxbury; Aerovox Corporation in New Bedford; and S. Newman Sons, Inc. of Philadelphia, in Melrose.

Requests for further information in response to the Commission's advertising have come from almost every state in the Union. Some have come from foreign countries. The majority of requests, however, have come from major industrial regions, such as New York, New Jersey, Pennsylvania and Connecticut.

Requests for booklets and information on available plants in many instances came from out-of-state industrial realtors and industrial engineers who almost invariably take precautions to guard the identity of their principals. An industry may come into a state as a direct result of initial activities of these realtors and industrial engineers whose name has never been publicly mentioned. There are many obvious reasons for this secrecy.

Types of industry principally represented by requests were textiles, soaps, wood working, foods, fireproof materials, agricultural equipment, shoes and leather, airplanes.

Need for Industrial Advertising

The advantages of industrial advertising and publicity was well stated by Mr. George C. Smith, Assistant to the President of the Missouri-Kansas-Texas Railroad Company in his address of November 18, 1938, before the New England Council. Mr. Smith said, in part: "Your future industrial growth rests not in imposing restrictions on the rest of the country, but in searching your own area for favorable factors to be presented in *most modern selling methods to the industrialists of the world*, and in continuing to be so organized as to prevent the creation of your region of factors—political, social or economic—which may prove to be unfavorable to industry."

Activities of Other Communities

Since the inauguration of the Commission's advertising campaign, many communities in Massachusetts have become acutely conscious of the need of local industrial efforts to solve their own particular economic community problems. Local organizing and fund raising for the purpose of encouraging new industry and for saving factory buildings now standing but not in use, is coming into general practice. Community groups whose industrial activities have been widely chronicled since January 1, 1938 include Worcester, North Brookfield, Ware, New Bedford, Hudson, Springfield, Chicopee, Northampton, Holyoke, Merrimack Valley, Mayors' Committee, Palmer, Taunton, Essex County Development Committee, Leominster, Rockland, Turners Falls, Orange, Athol, Winchendon, Pittsfield, West Warren, Marlboro, Newburyport, Lynn, Brockton and Quincy.

Advertising

Magazine advertising was concentrated in "Time" and "Fortune". Trade publications and newspapers were also used. This advertising campaign was carried on during the winter and fall months. The Associated Industries of Massachusetts, without charge, carried a two-page color spread each month throughout the year in its official magazine, "Industry". This has been a prime aid in keeping the Commission's industrial messages constantly before manu-

facturers within the Commonwealth and in holding their interest in the Commission's work. Two full-page advertisements were given the Commission in the 1939 "Directory of New England Manufacturers" through the courtesy of George D. Hall, Inc., publisher of the Directory.

Direct Mail

A letter over the signature of His Excellency, the Governor, and a copy of the smaller booklet, "Industrial Advantages of Massachusetts", were sent to 1,500 selected names of industrial executives. These names were selected and furnished by the trade papers and magazines which carried the Commission's advertising. The only cost beyond that of the booklet enclosed was for letterheads, mailing, preparation and postage.

Publicity

Of 16 broadcasts made under the Commission's auspices 4 were specifically on industrial subjects. These were 15-minute broadcasts, and time was generously donated by Station WEEI, Boston.

Various news releases were made to newspapers and periodicals within and without the state.

Cooperation with Fishing Industry

The week of October 2-9, designated as "National Fish Festival Week", represented a nation-wide effort to promote consumption of fish. Recognizing that fishing is one of the most important of Massachusetts' industries and to aid in the success of this movement, the Commission expended $1,000 to assist in preparing and distributing literature and general publicity throughout the country. The National Fisheries Convention and Exhibit was held in Boston October 6-9 and the Commission's cooperation was gratefully acknowledged in the official program. His Excellency, the Governor, at the request of the Commission, cooperated by dispatching a choice codfish to the President of the United States and to each of the other 47 Governors.

Activity Following the Hurricane

The Commission made a survey of industrial property damage following the hurricane disaster. This was done by personal investigation and by mail questionnaire. Those centers in which general damage was greatest were visited by representatives of the Commission together with representatives of the State Emergency Relief Commission and Public Works' engineers.

Survey material was forwarded to the Department of Public Works and these correlated with additional data gathered by that department, the State Emergency Relief Commission, other state agencies and the Associated Industries of Massachusetts. This material was made available for the consideration of the Legislature at its special session in October.

It is known that this prompt action, followed by visits, conferences and advices after the Legislature had acted, had a summary effect in retaining in Massachusetts a number of industrial concerns which contemplated moving out of the state. Many of these industries had been subjected to considerable damage in previous floods and were discouraged. Not a single concern left the state as a result of the hurricane, as far as can be learned. The Reed Textile Company, artificial silk manufacturers, Orange, with main factory in Scranton, Pennsylvania, has not reopened since the hurricane, but local officials are still hopeful that the Company will resume business in Orange. This firm had employed 50 to 80 persons.

Industrial Promotion Committee

His Excellency, the Governor appointed in March an Industrial Promotion Committee consisting of 72 prominent Massachusetts manufacturers and 42 representatives of labor. The purpose of this committee is to cooperate with the Commission in a mutual effort to secure more industries in Massachusetts. The committee also serves in a general advisory capacity to the Commission.

At a meeting called by the Governor in the State House, a protest against pending import tariff revisions was drawn up and transmitted to Washington. Later the Secretary of the Commission and Commissioner of Labor and Industries, James T. Moriarty, who is also a member of this Commission, attended The Reciprocal Trade Hearing in Washington in protest against any tariff unfair to Massachusetts industry.

Financing of Industry

Following a meeting attended by Commission members and industrialists with His Excellency, the Governor, a committee of leading industrialists was named by His Excellency to suggest a workable credit fund plan to aid present industries within Massachusetts and incoming industries. It was the thought of the Governor that a revolving fund of $100,000,000 for this purpose, to consist of $90,000,000 from RFC and $10,000,000 from Massachusetts banks, could be set up to help finance new industry and to take care of industries' wants within the state. This special committee reported that "loaning banks within the Commonwealth are in a position to extend all required financial assistance for sound propositions," and recommended that this Commission be allowed to advertise this fact—a recommendation that was followed out by the Commission. The services of three members of this special committee were tendered to the Commission to weigh industrial applications received by the Commission.

Letter Cancellations

A special design showing an outline map of Massachusetts and the wording "Massachusetts, Ideal Industrial State," was prepared and is being used on all mail outgoing from the State House central mailing room. The cost of die, art and other expense was $137.50. One of the leading banks in Boston has been granted permission to use this same cancellation on its correspondence. This policy is to be extended to other private institutions.

Need for an Industrial Expert

The Commission has reached the point where the services of an experienced industrial engineer with sales ability must be added to its staff. His duties will be to personally follow up all worthwhile replies and inquiries in a further effort to bring new industries to Massachusetts. He will also cooperate with industrial experts now retained by large public utilities and semi-public promotional organizations, Chambers of Commerce and industrial organizations and have access to their files to gain knowledge of additional prospective industries for Massachusetts and keep in close contact with the various members of the Industrial Promotion Committee.

Effectiveness of Campaign

One tangible tribute to the effectiveness of the industrial advertising carried on by the Commission has been voiced by the New England representative of a New York real estate firm specializing in industrial properties. This representative stated that prior to the appearance of the advertising it had been practically impossible to interest clients in Massachusetts industrial property, but that the task had become notably easier since the advertising appeared.

Summary of Expenses

Industrial Advertising and Publicity

Magazines	$20,450.00
Newspapers	7,650.31
Art, engraving and production	3,009.33
Publicity and Postage	1,771.58
Industrial book "In Black & White" (Delivered in December, 1937)	2,492.70
Festival fish week promotion, industrial slogans for mailing machines and incidentals	1,331.97
	$36,492.70

Recreational Activities

There is no one yardstick which will completely measure the results of such an activity as the Massachusetts recreational advertising. There are, however, a number of factors from which success or failure may be judged and these facts will be reviewed later in this report. All things considered, the efforts and expenditures of the Commission in 1938 to promote the revenue from recreational sources accruing to the people of this commonwealth have been successful, in other words—profitable.

Objectives

The primary aims of the Recreational Campaign have been:—

1. To draw more visitors to Massachusetts and to help create a tie which will bring them here, not once, but again and again.
2. To remind the citizens of this commonwealth that superb recreational facilities exist right here in Massachusetts and that one does not have to go beyond the state borders to find every recreational and vacational pleasure.

There are various secondary objects, such as the sale, lease or rental of resort property; the encouragement of local fairs, exhibits or entertainments which draw tourists; the advancement of Massachusetts as a center for national and regional conventions; and the further building of general prestige for the commonwealth.

Recreational Seasons

Summer and early autumn are the seasons when most of the two millions of annual visitors arrive in Massachusetts. It is, therefore, logical that the major part of the recreational advertising and publicity should be timed to influence the potential visitor *before* his vacation plans are settled. Thus, advertising is normally planned to start in April, reaching its peak in June and July. The 1939 World's Fair will draw millions of people to the Atlantic seaboard, many of whom may be induced to visit Massachusetts. People planning to attend the World's Fair will settle their summer vacation and travel plans earlier than they normally would. For this reason Massachusetts recreational advertising will start earlier than usual and the Commission has found it necessary to undertake the preparation of special World's Fair literature prior to the close of 1938. The bearing of the World's Fair upon Massachusetts' recreational business and the requirement for an earlier advertising start, necessitating a longer period of advertising, are both primary reasons why increased funds for recreational advertising should be provided.

Winter sports represent the second most important recreational item and one which is rapidly gaining in importance. Advertising in December, January and February is specifically directed to increase the number of visitors who come for winter sports. Fifty-six skiing and outing clubs are already organized and active in Massachusetts.

Massachusetts has, in the late autumn, a special attraction in its glorious fall foliage. Capital has been made of this feature by means of a limited amount of advertising.

Some of the Problems

One problem has hinged on the fact that during the summer time Cape Cod and other seashore resorts attract visitors from all over the world, while, with a quite different appeal, the Berkshires invite. Metropolitan Boston, with its points of historic interest and its urban entertainment, offers a still different lure. Every inland lake and stream, the rich farmlands, the summer socialite colonies—each has its individual points of attraction. In preparing advertising and publicity, the Commission has been mindful that every section of the state must be given equal recognition. Advertising has successfully blended the diverse elements of the various sections and every part of the state has received recognition.

The only recreational advertising carried within the state consisted of one insertion in all daily and weekly English language newspapers published in Mas-

sachusetts. This advertising was prompted by many local inquiries received for information as to Massachusetts' recreational facilities. Numerous papers carried editorials commenting favorably upon the theme of "Stay in Massachusetts for Your Vacation."

In several instances, newspapers have donated free advertisements, notably on winter sports.

Advertisements in magazines and newspapers outside the state carried a coupon and offered a free booklet. As a result, large numbers of requests were received. The Commission, working with Chambers of Commerce and other organizations, subdivided the state into nine zones. Inquiries, after being serviced by the Commission, were referred to one or more of these nine zones for further follow-up. This solution has worked out extremely well.

Advertising featuring fall foliage was scheduled to run at a time which, unfortunately, happened to be immediately subsequent to the hurricane. The advertising was withheld until roads had been cleared and fire hazard had abated. In spite of these adverse circumstances, reports from Berkshire areas indicate more than usual fall tourist business and the opinion has been expressed by Berkshire businessmen that the advertising was effective.

Advertising Media

Three principal means of paid advertising have been used, namely:—Magazines, newspapers, literature and direct mail.

The general magazines employed were *The Saturday Evening Post, National Geographic, Life, American Legion, Collier's* and *Harper's Bazaar.* Advertising aimed to sell, lease or rent resort property appeared in *House Beautiful, House and Garden, American Home* and *Town and Country.* Advertising for fishing appeared in *National Sportsman* and in *Hunting and Fishing.*

Thirty-two newspapers in fifteen major eastern and midwestern cities were used repeatedly. One insertion in foreign language newspapers has been used, which included Yiddish papers in New York and Philadelphia, two Italian language papers, two in German, two in Polish and one in Swedish.

Expenses for Magazine and Newspaper Advertising by Months
(Production costs included)

December 1937	
January 1938 (winter sports)	$1,193.00
February (winter sports)	1,183.56
March	
April (resort property)	864.52
May (summer vacation)	10,752.66
June (summer vacation)	5,943.56
July (summer vacation)	11,855.68
August	
September	
October (fall foliage)	3,055.42
November	
	$34,848.40

A two-color, 16-page envelope-sized booklet was prepared for use in a mail campaign. Additional copies were distributed in answering general requests. A more complete booklet, 8" x 10½", consisting of 32 pages, was used in servicing the majority of requests.

A 24-page envelope-sized booklet, listing ski trails, is in process of printing at the time of this report.

A mail campaign was sent to 70,000 school teachers. This consisted of a letter, a return mailing card and a copy of the first vacational booklet.

Guest stickers for windshields and maps of public picnic grounds were distributed to meet a popular demand.

Publicity Media

Publicity has been carried on by means of radio addresses made by state officials and other persons of prominence over Massachusetts radio stations. These addresses have been directed to the people of Massachusetts, and the time of speakers and of radio stations has been generously donated to the cause. In addition, radio time has been donated by certain stations in other states.

Publicity releases have been made to newspapers and periodicals and photographs have been widely supplied. Further detail concerning publicity is supplied later in this report.

Teachers' Campaign

What is felt was one of the most effective of the 1938 recreational activities was a mailing made to 70,000 school teachers early in May. These were teachers of American History in grade, grammar and high schools. History instructors in colleges were also included. The list included no teachers in Massachusetts, and was limited to teachers located east of the Mississippi River and not in the deep south.

The mailing consisted of a letter of invitation over the signature of His Excellency, the Governor, a copy of the booklet, "Massachusetts for a Memorable Vacation," and a return mailing card. Much interest and comment was stirred among educators by this mailing. 1,974 cards were returned asking for further information. The cost of this campaign was $4,060.64.

Recreational Booklets

Two illustrated booklets were produced. One envelope-sized, 16 pages, two colors, entitled "Massachusetts for a Memorable Vacation," was produced primarily for the teachers' mail campaign, for which 70,000 of the total edition of 112,500 were used. The balance was used for miscellaneous distribution. The cost of this booklet was $2,069.11 or $.0183 per book.

A second booklet, "Massachusetts—Ideal Vacationland", 32 pages and cover, 8" x 10½", features the major recreational facilities of the state and the principal summer recreation areas. 40,620 copies of this book, together with envelopes, were printed. It has been widely distributed in answering requests emanating from magazine and newspaper advertising as well as from general publicity. The cost of this booklet and envelope was $4,927.24 or an average of $.116 per book with envelope.

Guest Stickers

128,175 two-color windshield stickers and courtesy cards for tourists were issued and distributed at a distribution cost of $537.50. Fourteen major oil companies, members of the State Police, Chambers of Commerce and hotels cooperated in this distribution.

Picnic Ground Maps

A master map showing public picnic grounds and parking places, produced by the State Planning Board, was printed by the Commission in quantity of 3,000 and distributed, at a cost of $73.50. The supply has been exhausted.

Advertising on Fishing

One of the most successful accomplishments of the recreational advertising program was obtained from an insertion in two sporting magazines, Hunting and Fishing and National Sportsman, extolling the virtues of Massachusetts as a great salt water fishing center, with emphasis on tuna. A small advertisement costing $793.61 was inserted in these two magazines. Over 690 inquiries were received at a cost of $1.26 per inquiry.

Reports from several communities catering to those who engage in big game fishing as a sport, showed that, immediately following this advertising, there was considerable increase in demand for boats for this type of pastime. Inci-

dentally, last summer Massachusetts obtained considerable publicity as a result of the catch of the largest tuna fish ever taken on rod and reel according to official regulation in North Atlantic waters.

Cost of Answering Inquiries

The cost for listing, addressing and mailing to cover all direct inquiries received was $1,097.29.

Summary of Expenses

Recreational Advertising and Publicity

Magazines	$18,455.50
Newspapers	18,708.73
Art, engravings and production	2,767.49
Mail campaign to teachers	4,060.64
Additional teacher campaign brochures for general distribution	467.34
Recreational booklet "Massachusetts—Ideal Vacationland"	4,927.24
Recreational labels	326.69
Guest stickers	537.50
Listing, addressing and mailing	1,097.29
Picnic ground maps	73.50
Publicity and postage	4,041.16
	$55,463.08

Publicity

Publicity activities included the preparation and dissemination of many releases and photographs to newspapers and magazines, preparing radio addresses and arranging for stations and speakers, cooperation with Chambers of Commerce, automobile clubs and with various private concerns for the use or distribution of literature, etc. In all, 241,021 pieces of literature were sent to 489 cooperating organizations in 35 states, District of Columbia, Canada, France, England, Australia and Argentina. Eighty-nine different newspaper releases were made, representing 10,790 mailings, and 103 photos were sent out.

The Secretary of the Commission attended initial conferences of numerous organizations which were planning conventions.

Literature was sent in quantity to the following organizations which held this year or contemplete holding conventions in Massachusetts within the next two years:—

American Legion.
American Physiotherapy Ass'n.
Drop Forging Ass'n.
International City Managers' Ass'n.
Kiwanis International.
Lambda Kappa Sigma.
Massachusetts Teachers' Ass'n.
National Petroleum Retail Ass'n.
Massachusetts Fisheries Ass'n.
Veterans of Foreign Wars.
Disabled Veterans.
Refrigerator Service Engineers' Soc'y.

A representative of the Commission attended meetings with railway, steamship and hotel interests; with Chambers of Commerce and with various other bodies and representatives in reference to campaign to attract tourists to Massachusetts in 1939 during the New York World's Fair.

Through the generous cooperation of the Associated Industries of Massachusetts, the Commission received eight pages for the presentation of recreational advantages in the July issue of its periodical, *"Industry."*

Releases were supplied to and were used by many leading newspapers, magazines and travel publications. The Ullman Feature Service was supplied with material for motorlogue travel talks. The Cunard-White Star Lines used material in its "Visit America" campaign in Great Britain and on the Continent. Photos and descriptive matter for travel exhibits were furnished to other states, notably New York, Pennsylvania and Florida.

Material was supplied for a well-known lecturer and likewise for Mr. Ripley's famous "Believe It or Not". Photographs of Massachusetts locales for Prince

Albert Tobacco advertisements were furnished. These appeared in newspapers throughout the country.

Information for the publicizing of Massachusetts was supplied to the following radio stations: WMAS, Springfield, Mass.; WNEW, New York; WJZ, New York, used on Brooklyn Eagle programs; KSAC, Manhattan, Kansas. A 15-minute radio address was broadcast by the United States Travel Bureau from New York over all General Electric stations. This included shortwave stations W2XAD and W2XAF broadcasting for foreign countries in English, French and Spanish. Two electric recordings were made and broadcast from New York, one by His Excellency, the Governor, and the other by the former Chairman of the Commission. Station WOR, Newark, also broadcast information about the recreational facilities of Massachusetts.

The Commission has furnished speakers for both radio and organization meetings. From February 21st to June 10th inclusive, the Commission was responsible for 16 broadcasts, each of 15 minutes, over Station WEEI, Boston, the time having been graciously donated by the station. Eight of these broadcasts were devoted to recreational features of Massachusetts, and the first broadcast covered the general aspect of the undertakings of the Commission. These broadcasts did much to acquaint the people of Massachusetts with the purpose and work of the Commission and to indicate that reasonable expenditures of the public monies in these activities are definitely to the public benefit.

On August 15th the Commission opened an information bureau in the State Building on the Eastern States Exposition grounds at Springfield. This was the first time since the erection of the building in 1919 that it had been used other than during the week of the Eastern States Exposition. The information bureau was staffed, at the request of the Commission, by National Youth Administration and W.P.A. workers at no cost to the Commonwealth. This bureau remained open until the hurricane of September 21st, and was visited by many tourists. It is intended to reopen the bureau early in the spring of 1939 and to add permanent exhibits indicating recreational facilities of various regions of the state.

The Commission exhibited at the Brockton Fair, the exhibit being in charge of representatives of the National Youth Administration. Plans looking towards the establishment of a total of seven such bureaus to be staffed by the National Youth Administration are under way. These are to be located at principal highway points selected by the Department of Public Works.

Results

The Commission made 119,054 individual direct mailings to persons in every part of the United States, Canada and Europe. Literature sent in answer to requests, plus literature supplied to cooperating organizations for distribution amounted to a total of 360,075 pieces.

Direct inquiries traceable to magazine and newspaper advertising totalled 14,512.

From the direct mail campaign to 70,000 school teachers 1,974 inquiries were received.

As one result of the Advertisement which appeared in *House Beautiful, House and Garden, Harper's Bazaar* and *American Home,* the quick sale of a $25,000 piece of property in the Berkshires was consummated.

The 1938 summer season in Massachusetts and throughout the whole eastern region of the United States was generally cold and rainy. There can be no doubt that adverse weather discouraged many thousands of summer vacationists who otherwise would have visited Massachusetts. The New England Council was quoted as saying, September 2, 1938, that "summer recreational business was off 5% or more from the peak year, 1937."

Reports on summer business from the Berkshire area indicated that, while there were many less visitors from the midwest and far west than in 1937, weekend business appeared to be as large as in the preceding year. The winter sports business in the Berkshires was excellent. A checkup on two days, January 15th and 16th, by investigators from the Berkshire Hills Conference covered

12 of the 27 ski areas and indicated that 11,000 skiers had come to the Berkshires for those two days. Of this number 1,728 came by train, mostly from New York. There were 834 out-of-state cars parked in the ski areas. Referring to these facts, the following is quoted from a letter dated February 10th written by Mr. Frank W. Couch of the Berkshire Hills Conference to the Commission: "Naturally some of this business must have come from the advertising campaign carried on in the metropolitan newspapers by your Commission. The Conference did little white space advertising as we were practically out of funds. So, inasmuch as the Berkshires are a part of Massachusetts, we do feel that your Commission, in a great measure, contributed towards accomplishing some of these results."

With reference to results from publicity, 40,700 column inches of newspaper space were checked as resulting from publicity releases.

Cooperation

The Commission has been exceedingly fortunate in the cooperation it has received. Public officials within the state have willingly spoken on radio programs whenever requested. The advice of various state officials has been frequently asked and always conscientiously given.

There has been gratifying cooperation between the Commission and Chambers of Commerce and also with the Associated Industries of Massachusetts and many other associations. Transportation companies, resort hotels, gasoline distributing concerns and many other private industries have been generous in supplying information and photographs and in supporting the publicity program.

Expenditures as Contrasted With Those of Other States

Out of the total appropriation of $113,700, (of which $8,900 was for personal services) there was expended, in round figures, $55,000 for recreational advertising and promotion in the fiscal year 1938. By contrast with appropriations of many other states, most with less to sell, this is a meagre expenditure.

An interesting point regarding the Commission's activities is that the amount available for 1938 for all purposes was approximately the same as the amount expended in 1935 for recreation alone. In that year the Legislature appropriated $100,000. All of this fund was used for the promotion of recreation. In 1936, $75,000 was appropriated for recreation alone, yet in 1937 the appropriation for six months was but $50,000 to promote industry, recreational and agriculture, and but $104,800 for all three fields in 1938.

Our neighboring state of Maine in 1938 appropriated $200,000 for the purpose of promoting industry, agriculture and recreation, but the greater portion of this fund was expended for recreation alone. In addition, $175,000 was raised by independent agricultural groups for the sole purpose of promoting Maine's agricultural products. The State of Michigan in 1938 expended $150,000 for recreation alone; New Hampshire expended $70,000; New Jersey, $100,000. New Mexico, with but a fraction of the population of Massachusetts, expended $60,000 for tourists travel; Vermont, $47,500 for recreation; and Pennsylvania, $250,000.

The following tabulation outlines expenditures by the leading states for 1938:—

State	*Expended in 1938*	*State*	*Expended in 1938*
Maine	$200,000	North Carolina	250,000
	175,000[1]	Oklahoma	49,700
Michigan	150,000	Oregon	101,600
Minnesota	52,500	Pennsylvania	500,000[3]
New Hampshire	70,000	Rhode Island	25,000
New Jersey	100,000	Vermont	47,500
New Mexico	60,000	Virginia	68,045
New York	152,650	West Virginia	64,961
	300,000[2]	Wisconsin	200,000

[1]Raised by independent agricultural groups for the purpose of promoting Maine's agricultural products.
[2]Used for the promotion of milk.
[3]Two years' appropriation.

Extent of Advertising and of Recreational Income

The recreational message carried throughout the advertising in magazines, newspapers and direct mail was repeatedly presented to a reading public aggregating 10,000,000 people outside Massachusetts. Radio broadcasts, for which time and services were donated, and the limited amount of paid newspaper advertising in Massachusetts informed the people of the commonwealth of the aims and activities of its Commission and reminded them of the recreational advantages of their home state.

Despite the most adverse weather conditions, the volume of recreational business within the state was estimated from various surveys as close to the $200,000,000 mark of the peak year, 1937.

Comparison of Gasoline Sales 1937 and 1938

A particularly interesting check is one made by comparing taxable gasoline consumption during the tourist and vacational season (May 1st to October 31st) for 1937 and for the similar period of 1938. In the six months of 1937 figures, compiled by Tax Commissioner Henry F. Long, 390,222,366 taxable gallons of gasoline were used, netting the state $11,706,671. During the equivalent period of 1938 there were used 384,422,746 taxable gallons, yielding the state $11,-532,682. The decrease was less than 6,000,000 gallons during the comparable period.

Taxable sales of gasoline in August 1938 exceeded those of any preceding August since the gasoline tax was inaugurated ten years ago. Sales of 70,-964,600 taxable gallons in August 1938 may be compared with the 68,310,703 taxable gallons sold in August 1937.

Comparison of Business of Tourist Camps and Homes for 1937 and 1938

A survey by the Statistical Division, Department of Labor and Industries, at the request of the Commission, on the tourist trade in Massachusetts is the first survey of its kind made in this state. The investigation covered 105 tourist camps out of 146 recorded and 218 tourist homes out of 238 recorded.

The following figures from this survey are enlightening:

Total number of guests	*Tourist camps, cabins,etc.*	*Tourist homes (private residences)*	*Both classes combined*
1937 season	74,116	68,074	142,190
1938 season	87,956	60,029	147,987
	+ 13,842	— 8,045	+ 5,797
Total Income from Guests			
1937 season	$ 92,497	$ 86,843	$ 179,340
1938 season	112,367	74,312	186,679
	+ $19,870	— $12,531	+ $ 7,339

It appears that total number of guests and of income for these tourist accommodations increased during 1938 over 1937 and also shows the increased popularity of tourist camps or cabins as compared with tourist homes.

The survey shows that at least 171 restaurants in the state depend wholly or largely on tourist or transient trade, and that these restaurants in the past summer season took in about $2,000,000 or approximately the amount of their property replacement evaluation. They employ 1,331 persons on full time and 411 on part time.

The survey further showed that in these 171 establishments, 1331 persons were employed on full time, and that in many cases special parties required a large temporary increase in help. No data was compiled on the amount of wages paid, but the survey report points out that the total sum of wages represented a considerable sum.

AGRICULTURAL ACTIVITIES

During the fiscal year 1938 the Commission expended $11,000 in round figures for the promotion of agriculture within the commonwealth.

The object of this campaign was to stimulate interest in Massachusetts' grown and produced farm products—acquainting the citizens with the high quality of these products and impressing upon them that their use serves as a definite monetary aid to the farmer.

All the Commission's activities along these lines were based upon recommendations of an Agricultural Advisory Committee. So that the Commission would be properly advised on the promotion and expenditure for agriculture and to bring the various groups in that field together, the Advisory Committee was formed by the Commissioner of Agriculture, who is also a member of this Commission. Requests were first made to the advisory Committee, which in turn, made recommendations to this Commission. Advertising was carried on in newspapers, by means of the radio and by press releases.

Milk

The largest expenditure amounted to $5,059.71 for the promotion of milk. This request originated from the Committee for Promoting Sales of Dairy Products.

As a result of many conferences with representatives of this Committee and with the Commission, and also with the cooperation of the Milk Control Board, a radio campaign was embarked upon with the view to stimulating greater use of Massachusetts milk. The campaign started October 17th and continued for a period of 5 weeks during which time 18 radio stations within the commonwealth were used. A total of 315 announcements of one-minute duration in electrical transcription form were made over these stations.

This campaign met with the whole-hearted approval of the various committees interested and letters of commendation were received from the New England Milk Producers' Association, The Committee for Promoting Sales of Dairy Products, The Nearby Milk Producers' Cooperative Association and The Deerfoot Farms Company.

A typical letter expressing the reaction of those interested groups is that from Mr. John L. Cartin, Jr., Chairman of The Committee for Promoting Sales of Dairy Products. Under date of November 3, 1938 Mr. Cartin addressed a letter to the Commission as follows:—

> "Our committee wishes to thank you for the milk campaign you are putting on the radio.
>
> "We have had many favorable comments both from the dairy industry and outside it.
>
> "Your campaign should certainly help Massachusetts dairy farmers to increase their sales and lower their surplus. We expect to go into this period of higher costs in a stronger position as a result of your advertising and are very grateful for your help."

Poultry

The Commission appropriated $2,665 for an exhibit to be used at the World's Poultry Congress in Cleveland from July 28 to August 7, 1939. This expenditure covers the complete cost of the exhibit, packing, shipping and freight to Cleveland and return. This program was strongly urged by representatives of the poultry industry, which is the second largest agricultural enterprise in the state.

The exhibit emphasizes the fine records in poultry breeding in Massachusetts. It is a permanent exhibit and will be used extensively after its return to Massachusetts. The World's Poultry Congress will be held in the United States for the first time.

Following is a letter received from The Massachusetts Federation of Poultry Associations in connection with this activity, dated November 1, 1938 and signed by Paul D. Shores, President:

"At a recent meeting of the Executive Committee of the Massachusetts Federation of Poultry Associations, I was instructed to write you and express to the Massachusetts Industrial and Development Commission the appreciation of the poultrymen of this State for the splendid service you have performed in making possible the participation of Massachusetts in the Seventh World's Poultry Congress and Exposition. Your allocation of funds to make this possible is very helpful, and should do much in bringing Massachusetts to the forefront at this Exposition.

"Our Massachusetts Poultry Breeders have what we feel to be the best production bred stock in the world, and through the exhibit that you have made possible, we will be able to tell this story to the country and to the world.

"Thanking you for your splendid cooperation, I am"

Nashoba Apple Blossom Festival

An appropriation of $234.81 was made by the Commission in promoting the Nashoba Apple Blossom Festival held in the spring of 1938.

Elaborate plans were also made in connection with the Apple Growers' Festival scheduled to be held in Worcester last fall, but were abandoned because of the hurricane, which created a very serious situation for the apple growers of the Commonwealth. Millions of apples were grounded and many growers faced ruin.

At the request of the growers a newspaper advertisement was prepared and inserted in 20 newspapers in the larger cities of the commonwealth, at a cost of $1,795.50, urging citizens of Massachusetts to help by immediate extensive use of this perishable commodity.

Publicity releases enclosing apple recipes sent to many newspapers throughout the state, were widely used and evoked editorial approval. Many of the hotels throughout the commonwealth cooperated by featuring apple dishes on their menus, at the request of the Commission, and a Commission speaker addressed a convention of hotel stewards urging the extended use of apples. Advertisements of a similar nature as that of the Commission were run also by certain chain stores and others.

On November 2, 1938 the Commission received a letter from the New York and New England Apple Institute, Inc., signed by John Chandler, Director, reading as follows:—

"We wish to express our appreciation and that of every grower in the state of Massachusetts for the splendid work which has been done by the Commission in helping to move into consumption the hundreds of thousands of bushels of apples which were blown from the trees in the recent hurricane of September 21st, 1938.

"It is a service for which the fruit growers of Massachusetts are deeply thankful and which has resulted in mitigating the disastrous situation with which they have been faced."

Summary of Expenses

Agricultural Advertising and Publicity

Newspapers (apple sale promotion, hurricane)	$1,795.50
Art, engraving and production	103.86
Milk (exhibits and radio sales promotion)	5,791.64
Apple blossom festival promotion	326.63
Publicity and postage	371.00
Poultry exhibit for 1939 Cleveland World Congress	2,665.00
	$11,053.63

REPORT OF THE MASSACHUSETTS LABOR RELATIONS COMMISSION

Michael F. Phelan, *Chairman*: Patrick J. Sullivan, Francis M. Curran.
Harold L. Burke, *Executive Secretary*.

Summary of Activities

This report covers the fiscal year commencing December 1, 1937, and ending November 30, 1938, the first full fiscal year of the Commission's existence. In the early months of this period, the organization of the personnel of the Commission was still in the process of development. As only one addition was made to the personnel after the first few months, the Commission at the end of the fiscal period was in the fortunate position of having a group of employees thoroughly experienced in their work. This advantage, however, has been partially offset by the fact that there has been a gradual, steady increase in the business of the Commission necessitating an increase in personnel, especially in the case of hearing stenographers. The Commission, unfortunately, has been unable to effect essential increases in personnel because of lack of funds.

On May 19, 1938, the General Court approved an act incorporating the State Labor Relations Act (Chapter 436 of the Acts of 1937) as an addition to the General Laws. This act became effective on August 17, 1938, and since this date the Commission has operated under chapter twenty-three, sections 9O to 9R, inclusive, and chapter one hundred and fifty A of the General Laws. Because of this legislation, the Commission published revised rules and regulations effective on August 17, 1938.

Under our filing system, there were 389 cases before the Commission during this fiscal period; 260 of these were unfair labor practice cases and 129 were certification cases. It should be noted that the great majority of the unfair labor practice cases involved more than one violation. The total number of cases, therefore, considered by the Commission was 662. Of the 260 unfair labor practice cases, 228 were disposed of in the year; 195 having been disposed of through amicable adjustment and otherwise, without the necessity of a formal hearing. Formal hearings (similar to ordinary court trials and proceedings) were held in 107 unfair labor practice and certification cases and the time spent by the Commissioners in sitting at these formal hearings amounted to 166 days. For the purpose of convenience to the parties involved, these hearings have been held at locations throughout the commonwealth. As presiding over a formal hearing is only one phase of a Commissioner's duties, the Commission has found it necessary, because of the pressure of business, to adopt the practice of having only one Commissioner sit at a formal hearing.

This year has shown a constant increase in the business of the Commission. Every indication points to a further steady increase. It is very apparent that the Commission will not be able to perform satisfactorily its functions without additional personnel. The law requires a verbatim stenographic record of the testimony at each formal hearing. The lack of a sufficient number of hearing stenographers has caused unavoidable delay in the issuance of decisions inasmuch as each Commissioner must read the stenographic record of each formal hearing before making his decision. In the closing months of the fiscal period, the stenographic record of the average unfair labor practice case amounted to about 450 pages.

The Commission has also been greatly handicapped in bringing the cases to a speedy conclusion, so necessary especially in the case of an employee allegedly discharged because of unfair labor practices, because of the many continuances of formal hearings requested by attorneys for the parties involved.

At the end of the year, the Commission returned $2,294.67 to the treasurer of the commonwealth, which amount, however, had not been appropriated for personal services but for other expenses. The Commission also paid over to the treasurer of the commonwealth $467.59, received in payment for copies of stenographic records of hearings requested by parties involved.

TABLE A

Fiscal Year—December 1, 1937 to November 30, 1938

A. Total Number of Cases Before the Commission — 389

1. Total number of unfair labor practices cases 260*
2. Total number of certification cases 129

* Note: The great majority of the 260 unfair labor practice cases involve more than one violation of the act or law.

B. Total Number of Formal Hearings — 107

1. Total number of formal hearings—unfair labor practice cases . 33
2. Total number of formal hearings—certification cases . . 74

C. Total Number — Days of Sitting on Formal Hearings — 166

1. Total number of days — unfair labor practice cases . . . 97
2. Total number of days — certification cases 69

TABLE B

Certification Cases

Fiscal Year — December 1, 1937 to November 30, 1938

1. Cases handled — 129 Number of employees directly involved in cases handled 9352
2. Cases filed — 124 Number of employees directly involved . 9267
3. *Disposition of cases handled*

A. Cases withdrawn — 25

(1) As a result of amicable adjustment before formal hearing . 9

Other Cases Withdrawn

(2) Before hearing 13
(3) During hearing 2
(4) After hearing 1

B. Without formal hearing, dismissed for want of prosecution . . 19
C. After formal hearing, certification issued without election . . 10*
D. After formal hearing, certification issued as a result of election . 24*
E. After formal hearing, petition denied as a result of election . 26*
F. Cases continued as a result of request of parties 11
G. Denial of petition without election being ordered . . . 7
H. Cases at rest because connected with unfair labor practice charges before Commission 7

* Number of employees directly involved (C) 145, (D) 3594, (E) 2887.

Total days of hearings — 69

Total number of formal hearings — 74

TABLE C

N.B. Section 8 referred to below is Section 8 of Chapter 436 of the Acts of 1937. Section 4 referred to below is Section 4 of Chapter 150 A of the General Laws. Chapter 150 A supplanted Chapter 436 of the Acts of 1937.

Total	Type of Violation	Violation Sec. 8 (1) and Sec. 4(1)	Violation Sec. 8 (2) and Sec. 4(2)	Violation Sec. 8 (3) and Sec. 4 (3)	Violation Sec. 8 (4) and Sec. 4 (4)	Vioation Sec. 8 (5) and Sec. 4 (5)
533	Number of violations	260	35	186	2	50
700	Number employees immediately involved in matter of charges	–	–	698	2	–
180	Withdrawal as result of amicable adjustment by the parties effected by Commission after informal conference	88	12	62	1	26
14	Withdrawal after investigation disclosing lack of evidence or want of jurisdiction.	7	3	2	–	2
12	Withdrawal or dismissal and petition for certification substituted	6	–	–	–	6
32	Dismissal after investigation for want of prosecution	16	2	11	–	3
144	Dismissal after investigation for lack of evidence.	69	8	61	–	6
19	Dismissal after investigation for lack of jurisdiction	9	1	9	–	–
3	Complaint settled during trial	1	–	1	–	1
48	Complaint sustained	25	7	15	–	1
14	Complaint dismissed	7	–	7	–	–
–	Orders complied with without court action	16	7	6	–	1
–	Petition for enforcement filed in Superior court	7	–	7	–	–
–	Compliance with order before hearing in court on petition for enforcement	5	–	5	–	–
–	Hearings in Superior court on petition for enforcement	–	–	2	–	–
–	Decision by Superior court upholding Commission's decision	2	–	2	–	–
–	Petition filed and hearing in Superior Court after November 30, 1938, awaiting court's decision	2	–	2	–	–
58	Not disposed of on November 30, 1938	32	2	18	1	5

32 cases not disposed of on 11/30/38
Of these 32—5 since decided by Commission (3 complaint sustained, 2 dismissed)
4 awaiting Commission's decision
5 otherwise disposed of (dismissed, etc.)
7 awaiting trial and agreement of counsel as to date af trial
11 under investigation or investigated and awaiting action by Commission

There are many cases, both Unfair Practices and Certification of Representatives, in which the Commission and its staff have advised parties as to the procedure to follow and in which no record has been kept.

Number of employees working within the Commonwealth for employers against whom charges are made 88,890

Days of sitting—Unfair Practices 97

Total number of formal hearings 33

Number of folders containing cases originating in fiscal year 1938 216
(each folder containing in most cases more than one violation of the act, but grouped this way for purposes of filing.)

TABLE D

FINANCIAL STATEMENT

Received from General Appropriations	$62,327.25	
Received from Supplementary Budget	2,500.00	
Total	$64,827.25	$64,827.25
Expenditures and Obligations:		
Salaries	51,361.63	
Special Services	158.60	
Supplies	891.09	
Equipment	1,025.72	
Furniture	974.25	
Traveling Expenses	2,000.52	
Rent, Light, Telephone and Telegraph	5,245.25	
Other Services and Expenses	737.15	
Total	$62,394.21	62,394.21
		$2,433.04
Return to State Treasury Unexpended Balance:		
Personal Services	138.37	
Other Expenses	2,294.67	
Total	$2,433.04	$2,433.04
Turned over to State Treasury income received from sale of stenographic records	$467.59	$467.59